

of FARM ECONOMICS

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LEGISLATIVE AND ADMINISTRATIVE REASONING IN ECONOMICS

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THE promotion of Justice Stone to the position of Chief Justice of the United States, as well as the veto by the President of the Walter-Logan bill requiring judicial interference in administrative investigations, make significant the contrast in opinions of Justice Stone and Justice Roberts in the case, decided January 6, 1936, on the constitutionality of the Agricultural Adjustment Act of 1933.¹

Two equally competent institutional economists reach opposite conclusions on the same statement of facts in their theories of sovereignty and scarcity. The explanation is, not in the facts, nor in the mental capacities or integrity of the justices, but in their two methods of reasoning. Justice Roberts, for the majority of the Court, in declaring the Act unconstitutional, followed a legislative method of reasoning from extreme cases; Justice Stone, for the minority at that time, followed an administrative method of reasoning from an actual case statistically located somewhere between the extremes.

The distinction, historically in treatises on logic, is perhaps known as the difference between deductive and experimental reasoning, a distinction, however, not exactly valid for even the physical sciences where it originated.² And now, considering the way in which the distinction has come forward in the science of economics, it is the difference between a legislative method of reasoning without the economic distinctions of kind, quantity, degree, time or place, and an administrative method where the quantities, degrees of eco-

¹ U. S. v. Butler, 297 U. S. 1, 56 S Ct. 312 (1936).

² The following argument turns on the statistician's familiarity with the theory of probability and its frequency curves, thereby the statistician becomes skeptical of random samples and extreme cases, and gives to them but little weight.

nomic power and the timeliness of action are the determining points in reaching a practical decision to act.

The economic issue, as it came to the front in this case, was the use of *economic power* by the government in enforcing its commands, additional to its historical use of physical power.³ The Congress, in adopting the Agricultural Adjustment Act, had assumed, in conformity with traditional economists and Courts that economics was a field of *voluntary* agreements, contrasted with sovereignty as the field of *compulsory* agreements. But now, with the increased intensity of private use of economic power over individuals in the collective forms of corporations, labor unions, cartels, federal reserve banking, and with economic power further intensified by the closing of the world's frontiers against escape, these arguments of Stone and Roberts become a new constitutional debate whether the American government shall use economic power on behalf of unorganized farmers and others to counterbalance the organized economic power of other classes. Justice Roberts denied, and Justice Stone affirmed, this governmental use of economic power.

In this debate the meaning of "economic power" took on the two constitutional forms of "property" and "liberty." Property, whether private ownership or public ownership, is the power of *scarcity*—the power of the owner to command obedience of others by withholding from them what they need but do not own. Liberty, the liberty of an owner, his "economic liberty," took the form of "spending power," equivalent to the economists' "freedom of exchange," or "purchasing power," "buying power," "bargaining power," the liberty to fix or agree on prices or values by control of supply or demand.

In general, it had been assumed by economists and courts that this economic power was limited by free competition between equal individual owners, and this was the reason why economic agreements were deemed to be voluntary rather than coercive. It followed that the only place of government in the economic scheme was in the negative power (*laissez faire*) of preventing conspiracy or monopoly, either of which interfered with free competition and was therefore coercive rather than voluntary.

³ The term "power" as here used relates to the operation of threats and promises in getting present obedience in anticipation or avoidance of future alternatives. See Bertrand Russell, *Power*, 1938. Russell distinguishes Power from Energy, the latter being the force in physical sciences. But he omits economic power, by stressing military power and propaganda.

Justice Roberts denied that either a state government or the federal government was permitted, under the Constitution, to use this economic power. He argued that its use by government was coercive against private parties and not voluntary agreement on their part, and was therefore prohibited. His leading case was a decision ten years earlier by the same Supreme Court against the use of economic power by a state railroad commission.⁴ In that case a State administrative body had attempted to use the public ownership of the highways as its means to compel a private corporation to submit to regulation of rates by the State commission. Justice Roberts showed that the State government and the State commission had then used the same argument of a "voluntary" agreement on the part of the private corporation as the federal government and the Agricultural Department were now using on the part of the farmers. The Court had then said, as quoted by Roberts:

Having regard to form alone, the act here is an offer to the private carrier of a privilege, which the State may grant or deny, upon a condition which the carrier is free to accept or reject. In reality, the carrier is given no choice, except a choice between the rock and the whirlpool,—an option to forego a privilege which may be vital to his livelihood or submit to a requirement which may constitute an intolerable burden.

Thus the economic power, in this case of a State administrative department, consisted in public ownership of the highways. Its use as a fulcrum of bargaining power by the State commission was coercive upon a private corporation by withholding the use of the highways if the corporation would not submit to regulation. The same argument was now advanced by Roberts against the use of the "spending power" by the Department of Agriculture to compel obedience on the part of farmers. He said:⁵

... the Secretary is not required but is permitted, if, in his uncontrolled judgment, the policy of the Act will be so promoted, to make agreements with individual farmers for a reduction of acreage or production, upon such terms as he may think fair and reasonable. . . . The Government asserts that whatever might be said against the validity of the plan, if compulsory, it is constitutionally sound because the end is accomplished by voluntary cooperation. There are two sufficient answers to the contention. The regulation is not, in fact, voluntary. The farmer, of course, may refuse to comply, but the price of such refusal is the loss of benefits. The amount offered is intended to be sufficient to exert pressure on him to agree to the proposed

⁴ 297 U. S., citing *Frost Trucking Co. v. Railroad Commission of California*. Decided June 7, 1926.

⁵ 297 U. S., 55, 70, 71.

regulation. The power to confer or withhold unlimited benefits is the power to coerce or destroy. If the cotton grower elects not to accept the benefits, he will receive less for his crops. Those who receive payments will be able to undersell him. The result may well be financial ruin. The coercive purpose and intent of the statute is not obscured by the fact that it has not been perfectly successful. It is pointed out that, because there still remained a minority whom the rental and benefit payments were insufficient to induce to surrender their independence of action, the Congress has gone further and, in the Bankhead Cotton Act, used the taxing power in a more directly minatory fashion to compel submission. This progression only serves more fully to expose the coercive purpose of the so-called tax imposed by the present act. It is clear that the Department of Agriculture has properly described the plan as one to keep a non-cooperating minority in line. This is coercion by economic pressure. The asserted power of choice is illusory.

This citation to the Department of Agriculture had reference to a leaflet entitled *Agricultural Adjustment* quoted by Justice Roberts as follows:

Experience of cooperative associations and other groups has shown that without such Government support, the efforts of the farmers to band together to control the amount of their product sent to market are nearly always brought to nothing. Almost always, under such circumstances, there has been a non-cooperating minority, which, refusing to go along with the rest, has stayed on the outside and tried to benefit from the sacrifices the majority has made. . . . It is to keep this non-cooperating minority in line, or at least prevent it from doing harm to the majority, that the power of the Government has been marshalled behind the adjustment programs.

Thus the Supreme Court, in these two cases, attacked the two components of economic power. In the state highway case it was the power of ownership to withhold supply from all parties. In the Agricultural case it was the power to withhold supply of government funds from a minority of competitors, and thus restrain their liberty, in order to increase the bargaining power of the class as a whole against all other classes. Justice Stone's arguments were concerned with the latter. He said:

That the governmental power of the purse is a great one is not now for the first time announced. Every student of the history of government and economics is aware of its magnitude and of its existence in every civilized government. Both were well understood by the framers of the Constitution when they sanctioned the grant of the spending power to the federal government, and both were recognized by Hamilton and Story, whose views of the spending power on a parity with the other powers specifically granted, have hitherto been generally accepted. The suggestion that it

must now be curtailed by judicial fiat, because it may be abused by unwise use hardly rises to the dignity of argument. So may judicial power be abused. "The power to tax is the power to destroy," but we do not, for that reason, doubt its existence, or hold that its efficacy is to be restricted by its incidental or collateral effects upon the States. . . . The power to tax and spend is not without constitutional restraints. One restriction is that the purpose must be truly national. Another is that it may not be used to coerce action left to state control. Another is the conscience and patriotism of Congress and the Executive.⁶

Herein Justice Stone agreed that the use of economic power by the government was coercive, similar to the power of taxation, and that both were subject to abuse in extreme cases. The implication, however, that economic power had been equally coercive at the time when the Constitution was framed or for a century afterwards is doubtful. During that period there was an open frontier for escape, with only a few or weak corporations or unions, and no organized administrative banking system. Applicable, however, to its increased coerciveness in recent times, Justice Stone proceeded to show that economic power was not unlimited in its practical administration. His arguments in this field of institutional economics may fittingly be named the foundations for a fourth branch of the American government, the branch of Administrative Economics.⁷

Justice Stone and Justice Roberts agreed that the Adjustment Act was "coercive" instead of "voluntary." They differed on the issue of its administration. The grounds for their respective positions will appear from its provisions. The Act started with a preamble of general welfare, defined as the "orderly exchange of commodities" in the "national credit structure," broken down, however, by the "present acute economic emergency," which destroys the value of "agricultural assets." This destruction of value was attributed mainly to the "severe and increasing disparity between the prices of agricultural and other commodities." The stated purpose of the Act was to "establish and maintain such balance between the production and consumption of agricultural commodities and such marketing conditions therefor" as will restore the pur-

⁶ 297 U. S., 86, 87.

⁷ See James M. Landis, *The administrative process*, 1936. Dean Landis considers mainly the *procedure* in this branch of government compared with the procedure in the legislative and judicial branches, rather than its foundations for a science of Administrative Economics. For a comprehensive account of the Department of Agriculture, see Gaus and Wolcott, *Public administration and the United States Department of Agriculture*, 1940. Also, *Yearbook*, 1940, of the Department of Agriculture.

chasing power of certain designated agricultural commodities to the level of a base period, August 1909 to July 1914. This level was defined as "parity," or "fair exchange value" with manufacturers' prices, to be ascertained by the Secretary of Agriculture from "available statistics" of the Department. The termination of the emergency for each commodity was also provided for; and was declared to be such date, to be likewise determined by statistics, when "parity" should be re-established for that commodity. The Secretary should have the power to provide for "reduction in acreage," or "reduction in the production for market," or for both, by "agreement" with producers or by other "voluntary methods," including benefit payments to be paid to farmers who agree to the restriction of output, such as "the Secretary deems fair or reasonable." The Secretary should also have the power to determine an appropriate "processing tax," to be "levied, assessed and collected" upon the first manufacturing of the commodity, for the purpose of paying the ascertained reasonable benefits to the producers.

These were the general features of the legislative Act, to be administered for individual cases by the Department of Agriculture. There is no doubt about its novelty in American economics and jurisprudence, although it was modeled, as nearly as practicable, upon the protective tariff, and upon the well known restrictions of output by manufacturers in laying off employees and shutting down factories in order to maintain prices during emergencies. But in this agricultural case there was something entirely new, the restriction of food supply, symbolized by the extreme case of the slaughter of six million pigs by administrative process, known to the Justices, in order to maintain the price of hogs. This shocking fact, although somewhat parallel to the laying off of employees who needed work for the subsistence of themselves and families, was parallel to the case actually before the court which had to do with cotton, the clothing of the people. The slaughter of pigs, or the restriction of cotton acreage, or the limitation of other food production by administrative process, in order to create scarcity and thereby raise prices during a credit emergency—was it constitutional or unconstitutional?

An emotional result of reasoning from extremes is the fear of what an actual case, if once permitted, might lead to. It might lead to communism, fascism, or anarchism. Short of these last extremities it might lead to other dangerous extremes. Justice Roberts

agrees that this power to spend on behalf of farmers is subject to limitations, but fears what it might lead to. He says:

We are referred to appropriations in aid of education, and it is said that no one has doubted the power of Congress to stipulate the sort of education for which money shall be expended. But an appropriation to an educational institution which by its terms is to become available only if the beneficiary enters into a contract to teach doctrines subversive of the Constitution is clearly bad.

Justice Roberts proceeds with other extremes of what the processing tax and its expenditure might lead to. It might lead to extracting money from one branch of industry and paying it to another branch, throughout the United States. It might lead to transferring money from farmers and miners to manufacturers. It might be used as an "indirect" power to reverse the recent decision of the Court that Congress had no "direct" power to regulate wages and hours of labor in local business.⁸ It might lead to an excise tax of 2¢ per pound on every sale of sugar, to be turned over to the refineries. It might be used to reduce the output of shoes and clothing; and so on, in favor of any business group which thought itself underprivileged. "The supposed cases," said Justice Roberts, "are no more improbable than would the present Act have been deemed a few years ago."

In order to alleviate these fears of extreme cases of economic coercion which representative government might lead to, Justice Stone, in reply, referred to other cases not deemed to be absurd or extreme which the Roberts' decision would lead to. The government might give seeds to farmers, he said, "but may not condition the gift upon them being planted"; might give money to the unemployed, but not ask them to give labor in return; might give money to sufferers from earthquake or fire, but not impose conditions to prevent the spread of disease; "all that, because it is purchased regulation infringing state powers, must be left to the states who are unable or unwilling to supply the necessary relief." Many other cases are cited, and, in general, Justice Stone asked regarding the federal government, "Do all its activities collapse because, in order to effect the permissible purpose, in myriad ways the money is paid out upon terms and conditions which influence action of the recipients within the states which Congress might command? . . . If the expenditure is for a national purpose, that purpose will not

⁸ *Schechter Poultry Corp. v. U. S.*, 295 U. S. 495.

be thwarted because payment is on condition which will advance that purpose."

The foregoing, again, indicates the difference between the generally understood physical power of sovereignty and economic power. Roberts denies but Stone affirms the exercise of the latter to both State and federal governments. Economic power has to do with its effects on prices and markets. These are foreign markets and such domestic markets as are beyond the power of the states, acting separately, to control. Both the protective tariff and the immigration restriction laws were designed mainly as economic measures, to enable manufacturers and laborers to maintain domestic prices and wages throughout the states against foreign competition. Justice Roberts' opinion, supported by the majority of the Court, denied the authority of the government to levy a processing tax, analogous to the tariff tax, in aid of those farmers who agreed to restrict output in order to maintain these domestic prices against either foreign or domestic competition. The Congress, in re-enacting the Agricultural Adjustment Law, omitted the processing tax, but provided for similar payments to farmers out of the general fund of the Treasury, regardless of the taxable sources. Apparently the promotion of Justice Stone, along with similar changes in the Supreme Court, renders the processing tax hereafter constitutional.

Justice Stone, as above quoted, mentioned three limits placed upon the federal government. The third limit, namely, the "conscience and patriotism of the Congress and the Executive," was further enlarged to include "wisdom." Wisdom, in Stone's usage, may be defined as good judgment in deciding upon what is reasonable coercion by government somewhere between the extremes of absurd coercion dreaded by Justice Roberts. Justice Stone said:

A tortured construction of the Constitution is not to be justified by recourse to extreme samples of reckless congressional spending which might occur if Courts could not prevent expenditures which, even if they could be thought to effect any national purpose, would be possible only by action of a legislature lost to all sense of public responsibility. Such suppositions are addressed to the mind accustomed to believe that it is the business of courts to sit in judgment on the wisdom of legislative action. Courts are not the only agency of government that must be assumed to have the capacity to govern. Congress and the courts both unhappily may falter or be mistaken in the performance of their constitutional duty. . . .

The other two limits on the taxing and spending powers mentioned by Justice Stone are the two jurisdictional sides of the same

physical or economic power, namely, national sovereignty *versus* state sovereignty. The purpose must be truly national, which is the same as saying that it must not interfere with matters left by the constitution to state control. It was in support of state sovereignty that Justice Roberts, for the majority, finally declared the Act unconstitutional, although his arguments were directed against the use of economic power by those state governments as well as the federal government.

Besides the issue of economic power as an instrument of sovereignty was the legal issue of the American attempt to separate the government into legislative, executive and judicial branches. Justice Roberts would maintain this separation by making out that the Court did not use the physical force of sovereignty. He said:

It is sometimes said that the court assumes a power to overrule or control the actions of the people's representatives. This is a misconception. When an Act of Congress is appropriately challenged in the courts as not conforming to the constitutional mandate, the judicial branch of the government has only one duty—to lay the article of the Constitution which is invoked beside the statute which is challenged, and decide whether the latter squares with the former. All the court does, or can do, is to announce its considered judgment upon the question. This court neither approves nor condemns any legislative policy.

Against this disclaimer of judicial power, as a mere logical or intellectual power of opinion without physical force, Justice Stone set up the argument of a truly sovereign power of the judiciary in that it has the last word in the American system of divided sovereignty. He said:

The power of the courts to declare a statute unconstitutional is subject to two guiding principles of decision which ought never to be absent from judicial consciousness. One is that courts are concerned only with the power to enact statutes, not with their wisdom. The other is that while unconstitutional exercise of power by the executive and legislative branches of the government is subject to judicial restraint, the only check upon our own exercise of power is our own sense of self restraint. For the removal of unwise laws from the statute books, appeal lies not to the courts but to the ballot and to the processes of democratic government.

Thus the Court, having the last word in affirming or preventing the use of physical force, and having its own executive officers, is really sovereign. Like other sovereigns, it is limited only by its own sense of self-restraint.

We may observe in addition, from the economic standpoint, that

this internal sense of self-restraint may find external guidance in the statistical investigations presented by the Department of Agriculture for the Court's consideration. By reasoning from extremes, these statistical showings of what was to be done between the extremes are ignored. Yet it is their statistical validity, as furnished and critically examined by its own investigational staff, and then subjected to public hearings of all parties, that constitutes, one might say, the whole of administrative economics.

These public hearings include a specialized modern development which would be included under what Justice Stone characterized as "the processes of democratic government." It is not only the indiscriminate and accidental public that is heard, but also the more interested public of those directly and economically to be restrained by the regulations to be issued by the Department. This was the actual procedure of the Department of Agriculture in its investigations, revising and correcting its own previous rulings and mistakes, and consulting the advisory committees of farmers on its statistics and its proposed economic restraints, as well as submitting the plans to referendum vote of the particular farmers who produced the crop in question. This "democratic process" was prescribed, in part, in the Act, and was known to be the process followed by the Department. This again enforces the inference that Justice Stone would not, without further Congressional mandate, approve the judicial restraints on the Agricultural Department contained in the Walter-Logan bill, but would refer the investigations back to the Department and its process of consulting the farmers.

These considerations emphasize still further the economic character of this alleged fourth branch of American government. Under the American system of attempted separation of powers, neither the legislature, nor the administrative agency operating under powers delegated to it by the legislature, has the strictly *executive* power, contemplated in the Constitution, of enforcing by physical force its own commands, or "orders." The only constitutional possessors of this physical power are the President (or state governor) and the judiciary. The former is commander-in-chief of the army and navy and of such other subordinates as use physical force; the judiciary commands the marshals (or sheriffs) who obey without investigation. Justice Roberts' "power of judgment" is, in fact, a command issued by the Court to the United States marshal (or sheriff) order-

ing the use of physical force, if necessary, to stop the administrative process. I have myself seen it operate upon an administrative colleague of mine, who thought he knew better than the Supreme Court of the State. Justice Roberts' alibi is dismissed.

This command is effective because the administrative department, as just now suggested, is not itself an executive department in command of the physical force needed to carry its own decisions into effect. It may not arrest or imprison anybody. It may not resist the marshal or sheriff. It must make application to the Court to issue its own order to use force, and must submit its arguments. Its power is only investigational and advisory insofar as the legislature authorizes and the Court approves. As a so-called "fourth branch" of government it is more nearly like a standing committee for economic investigations and recommendations to the three recognized branches, and to the people generally. If in addition, it has discretion in issuing orders to individuals the reason why the latter do not challenge the orders by appeal to the Court for review and reversal is because they expect that the courts will decide as they had formerly decided. In this respect the administrative "orders" are analogous to the force of custom. This is, indeed, the only ground of assurance that the Agricultural Department will have economic power in each case as it arises, namely, the expectation that the Supreme Court and the inferior courts will follow the reasoning of Justice Stone rather than Justice Roberts, and refuse to interfere with its administrative investigations and decisions.

This assurance is indeed also the ground on which corporations and labor unions are able to exercise their collective economic power. They are forbidden to use physical violence, but they have the double assurance, in the American economic system, that the courts will not use their own command of physical force to interfere with the private organizations in their use of economic power, and that the courts will further use this same power to enforce their contracts or "voluntary" agreements. Thus the reason why they also are designated as "voluntary" by their spokesmen, is not because their economic power is not economically coercive, but because it is not physically coercive—quite the same meaning of "voluntary" as that which the Congress employed in its delegation of economic power to the Agricultural Department.

These traditional views about the non-coerciveness of economic transactions, which now are recognized as coercive by both Justice

Stone and Justice Roberts, indicate that the Court has contradicted the arguments of so eminent a jurist as Professor Corwin, who had predicted the "twilight" of the Supreme Court on the assumption that the Court could not, or would not, undertake to control the "spending power" of the government. As soon as this "spending power," which is "economic power," is recognized as coercive through collective action, on account of such evident denial of freedom as suggested by the choice between the "rock and the whirlpool," then the issue falls between extreme cases of abuse and a reasonable use somewhere between the extremes. This reasoning also applies to private collective use of economic power in the hands of corporations, banks, labor unions, and the like, for which the older individualistic meanings of "voluntary" economic agreements continue to be used, but are obsolete. The Agricultural Adjustment Act was certainly, as Roberts contended, the use of coercive economic power by the government, not recognized by Corwin as coercive, on behalf of a great economic class who had not themselves learned how to use it collectively in dealings with corporations, banks and labor unions.⁹

It follows from the foregoing that the reliance on statistics is characteristic not only of the modern science of economics, it is also, more emphatically, the reliance of modern administrative economics in carrying out the legislative policy. But it is not a hit-or-miss blind statistics—it is guided by economic theory, which is economic analysis of the several factors. This guidance has both its legal and its economic side, united in the modern administrative department.

On the legal side the statistical method of reasoning from actual cases had always been, in fact, the historical method in Anglo-American jurisprudence in cases of "fair competition," between the extremes of "destructive competition," or "chiseling," and monopolistic competition. As such, it was the point, to be discovered by proper judicial investigation and "due process" of notice and

⁹ E. S. Corwin, *The twilight of the Supreme Court*, 1934. More recent decisions tending further to overrule Justice Roberts' opinion by tending to enlarge the spending power of the Federal Government are *Helvering V. Davis*, 301 U. S. 319, 57 S. Ct. 904 (1937); *Alabama Power Co. v. Ickes Federal Emergency Administrator of Public Works et al.*, 302 U. S. 464, 58 S. Ct. 300 (1938); *Duke Power Co. et al., v. Greenwood County et al.*, 302 U. S. 485, 58 S. Ct. 306 (1938); *California Water Service Co. et al., v. City of Redding, et al.*, 22 F. Supp. 641 (1938) decree affirmed 304 U. S. 252, 58 S. Ct. 865 (1938). These citations furnished by Mr. Philip M. Glick, U. S. Dept. of Agriculture, August 13, 1941.

hearing, where each of the conflicting interests at the time and place were given its "due weight" in reaching a judicial decision. The cases turned mainly on valuations of "intangible" property known as "goodwill," "trade name," "trade reputation," claimed by one or more of the parties to a transaction. In more recent times this method of reasoning from specific cases becomes an administrative method when delegated by the legislature to a governmental department, like the Interstate Commerce Commission or the Department of Agriculture, with its staff of economists and statisticians, instead of the courts without this type of investigators.

But this delegation of authority for economic investigations on which to base decisions was obstructed during about twenty years of hostile decisions by the courts before it was conceded by the Supreme Court in the field of such monopolistic public utilities as railways regulated by the Interstate Commerce Commission. And now, with the public regulation of similar monopolistic competition in other fields, and with changes in the personnel of the Supreme Court, it becomes the recognized method of administrative reasoning, permitted by the Courts, not only for the Agricultural Department in the use of economic power, but for other administrative departments, whether headed by an individual like the Secretary, by a board or commission, or by a "public corporation," like the Tennessee Valley Authority.¹⁰ All of them are in fact standing committees for economic investigations and recommendations to the government and the people, with the power of custom in enforcing what are really provisional orders effective as long as not lawfully contested elsewhere.

This is the modern development on the legal side of the American separation of powers. On the economic side the use of statistics is the starting point of facts and policy. On calculations derived from these statistics the Secretary of Agriculture was directed, in each year in advance of the plantings, to ascertain the amount of rentals or benefit payments to be paid to each farmer the coming year, in consideration of his reduction of crops by such amounts as would be deemed sufficient, with the other farmers during the emergency, to restore the price parities of twenty years before.

These statistical limits, of course, do not of themselves restrict

¹⁰ See David E. Lilienthal, *The conduct of business enterprises by the federal government*, Harvard Law Review, February, 1941.

the discretion of the Secretary of Agriculture. In the constitutional government of America the actual limits had been set by the judiciary in its control of administrative officials. In such control, as has happened with the Interstate Commerce Commission, the Court, in actual cases as they arise, eventually learns to respect the statistics and thereby to determine whether the final decision of the administrative authority comes within the "rule of reason." Such consideration is superfluous when reasoning from extreme cases. Justice Roberts, on that account, would exclude altogether the use of economic power, but Justice Stone would submit its use to the historical doctrine of the rule of reason.

Thus, on both the legal and the economic sides, the transition is made from the dogmatic economics of the nineteenth century to the statistical, investigational and administrative economics of the twentieth century.

But the use of statistics presupposes economic theory, which is economic analysis. The inconsistency of the proposed reduction of the nation's food supply in order to raise prices at the very time of unemployment was in the background of Justice Roberts' reasoning. The inconsistency was not adequately met in the "Brief of the United States." This Brief, using the "infant industry" argument, emphasized the greater possibilities of *reducing prices* in manufactures on account of machine technology, compared with the inability of farmers to use "mass production technics" in order to *reduce* the prices of farm products.

Here the Brief did not properly make the analysis of a credit emergency contrasted with the long-time trend of technology. This argument of the government before the Court, on technological grounds, would support the communist conclusion that small-scale production in agriculture must give way, in the long-run trend of increasing efficiency, to large-scale mass production, so that the independent farmers would be reduced to wage-earners employed by agricultural corporations.

But such an outcome was opposite to the purpose of the Congress. The statistics purported to show that the inconsistency existed only during the emergency. The emergency was stated definitely to be a matter of the "credit structure" which had broken down, instead of a matter of increased technological efficiency. It is the distinction between "producing power," which increases abundance by machinery, and "bargaining power" which withholds

abundance by ownership, and is the inconsistency of capitalism itself, based on private property. The purpose of the Congress was to preserve, during the emergency, the individual farmer in his bargaining power, as essential to the "national credit structure," instead of permitting him, in the credit emergency, to be reduced to the extreme of a propertyless wage earner. The government's legal argument, at this point, inconsistently supported, in fact, the inference of Justice Roberts that, by government aid, farm prices would be *reduced* by "underselling," whereas the statistics supported the argument of the economists of the Agricultural Department to the effect that, by administrative restrictions of output during the emergency, farm prices would be *raised* relative to industrial prices.

The distinction is basic for economic analysis, and has been brought out by statistical economists under the name of "business cycles," only during the past thirty years. A credit collapse creates an emergency which, in the economic theory of Congress, might be overcome by restoration of the preceding level of purchasing power deemed to be "parity." But a technological trend of increasing efficiency is a long-run trend of centuries, and was, indeed, the kind of gradual change contemplated by nineteenth century economists when speaking of the temporary displacement of labor by machinery, counteracted, "in the long run," by their optimistic increase of prosperity by increased efficiency over the centuries.

A more fitting emergency analysis of the credit collapse is in the comparison of *methods* of manufacturers in counteracting their falling prices by reducing output through shutting down plants and laying off employees during the emergency, and the *methods* of farmers who cannot shut down their farms, nor lay off themselves and families, even for a few days. They must go on producing a surplus at falling prices while the manufacturers are maintaining prices by unemployment.

But the emergency argument recognizes that credit operates in cycles. It therefore contemplates that the emergency will disappear by some form of recovery from the disparities of the business depression, either an economic recovery that will increase demand and raise prices, or even a military recovery by war. The latter we unhappily see is actually happening, and the restrictions are not only being removed by the Department, but the farmers are actually urged to enlarge output instead of reducing output.

This effort of the Department of Agriculture to enlarge output by farmers is claimed by its critics to be a reversal of its policy and an acknowledgment of its former economic fallacies when it was restricting output. But it is not a reversal nor a confession. It is a consistent policy of "adjustment" to the credit cycle—an adjustment by means of administrative process which protects the farmers during the credit depression when needed, and removes the protection during credit recovery when not needed.

This distinction between credit cycles which are temporary ups and downs, but are the normal workings of the credit system, and technological efficiency which has steadily increased during centuries by mechanical inventions, is the most important of all distinctions revealed recently by statistical analysis. It is a distinction not at all recognized by the traditional economists, by the politicians, by the courts or by the public generally, as shown by the above criticism directed against the Department of Agriculture. The distinction enforces the need of recognizing Administrative Economics, as against legislative or judicial economics, and especially in the field of agriculture. An administrative department alone can meet promptly the "adjustments" needed to ward off inflations and deflations of prices, or bring relief promptly in time of deflation.

The Adjustment Act of 1933 is almost the first Act of American legislation designed specifically to counteract this credit cycle. In the case of tariff legislation, by contrast, there is required a political campaign, spaced at four years, to adjust the tariff to prosperity or depression. This is confirmed by economic history. The high tariff party, for more than a hundred years, has nearly always won its votes during a depression in business, as an instrument for protection and recovery for the benefit of *producers*. The low tariff party, then, usually gets its votes after prices and wages have risen with prosperity, as an instrument for reducing the high prices of protected industries, for the benefit of *consumers*. But the Agricultural Adjustment Act by means of daily investigations and statistics, increases its protection of agriculture during the depression when needed, and reduces or removes its protection when agriculture recovers prosperity, without waiting for political campaigns, legislation, or court action.

Something similar occurs in the judicial economics of anti-monopoly, or anti-trust prosecutions. A judicial trial requires pro-

longed preparations and delays, reaching its decisions usually after the emergency has passed; and then there is no effective provision for a rehearing or re-adjustment to fit the emergencies of prosperity or depression. But the administrative economics of "agricultural adjustment" was designed to fit itself to the "disparities" of monopolistic inequalities suffered during the depression by farmers in their dealings with manufacturers or unions, and then to fit itself to the "parities" of restored equality of bargaining power during the ensuing period of prosperity.

This is the emphatic difference between administrative economics and legislative or judicial economics in the American system of attempted separation of powers. The defenders of judicial economics, in their opposition to administrative economics, set up the contrast of a "government by law," meaning a government by courts, against a "government by men," meaning administrative departments. But, with the statistical developments of economics and administration, the contrast is more properly government by delay and exclusion of economics against government by timely economic action based on preparatory statistical investigations.

While the method of extreme cases creates absurdities and is the fruitful field of satire, it leads to no conclusions, of course, regarding the actual rentals and benefits to be paid by the government during the time of emergency, nor the actual restrictions on output or sales made by the farmers. They were not, however, the extremes of "unlimited benefits." The administrative method of reasoning from actual cases, as suggested by Justice Stone's argument, proposes that the Court should consider the statistics of limited benefits during a limited period of emergency, instead of condemning the legislative plan as a whole for all time. It is a change from unconstitutionality of a legislative act as a whole to reasonableness of an administrative act statistically determined in detail for a specified time and a specified industry or occupation.

Reviewing the arguments, there were three points at issue in the case, each with contrary opinions by Justice Stone and Justice Roberts. First, the destruction of pigs, or the restriction of crops, was a *legislative* question according to Justice Stone, but a *judicial* question according to Justice Roberts. Second, the *spending* power of the government is its economic power, an "indirect" power of withholding instead of a direct physical power of compulsion, and the use of this economic power is a legislative question, according

to Stone, but a judicial question according to Roberts. The third issue, how far into the details of control over individuals the administrative authority shall be permitted to go, if not prohibited altogether, was afterwards before the Congress in the Walter-Logan bill, applied to all administrative agencies. The bill was adopted by the Congress, on the theory of government by law instead of men, but was vetoed by the President. This bill, when reduced to its practical workings from the standpoint of economic investigations, meant the use of the injunction by the courts at any stage of the proceedings, in order to prevent administrative officers from summoning witnesses, taking testimony, or otherwise proceeding towards an administrative investigation or decision. The bill, in effect, authorized the lower courts to rehear and reject any of the testimony or investigations of administrative authority, and to hear any *new* testimony not heard by the administrative, instead of referring it back for consideration by that agency. If such a case should arise, in the absence of further legislation like the Walter-Logan bill, the Supreme Court, if it follows Justice Stone's opinion, would apparently not permit the lower judiciary to interfere *during* the administrative process; but afterwards, in review of the whole case, as provided by the Constitution, would treat the matter as a *legislative* issue to be decided by the Congress in its control of the administrative agency.

It is only by the use of statistics that the essential distinctions in economic investigations can be made for guidance of administrative action. The Courts, not equipped with a staff of qualified economic statisticians must depend upon an administrative department, or upon cross-examinations by lawyers of the prosecution and defense, for discovering or rejecting the facts. Then they pass only upon the procedure, as to whether it was a fair fight or not. They usually exclude the economic facts as irrelevant or indifferent. If, then they presume to reason without the statistics, they resort to the deductive reasoning in economics which does not discover whether the particular case, under the circumstances, is an extreme use, or a reasonable use, at the time, of economic power. So it is that Justice Roberts did not propose to make the many economic distinctions required in practical affairs, such as differences in kind, differences in quantity, differences in degree of economic power as indicated by different prices, wages, values, or differences in time of depres-

sion or prosperity. This is the reason for naming his method the legislative method of reasoning without statistics.

But Justice Stone's reliance on administrative reasoning requires many differences to be discovered by analysis and statistics, such as differences in bargaining power, producing power, intellectual power, the "power of judgment," the power of taxation, the regulations of commerce, the police power, etc.

It also requires distinctions in many *degrees* of the same kind of power, from the least possible to the highest possible degree, as well as the most vital of all distinctions, that of timeliness in an emergency, or in the slow routine of long-time trends, on which depend the decisions of immediate, or deferred action, or no action. Deductive reasoning, though it may be perfectly logical and valid as a mental operation at all times, on the assumption of unchanging circumstances, is separated from the realities of actual life where choices are made between different degrees of different kinds of power at each successive moment of living, both in emergencies and routine. In this process the Court does not abdicate—it always retains the last word in its final review, as provided by the Constitution and asserted by Justice Stone.

The legislature, also, is not equipped with qualified statistical investigators, except as it provides and finances them for the administrative departments. Hence the various debaters *pro* and *con* in the legislature proceed to argue their case from extremes, and there could usually be no agreement reached were it not for the familiar despotic device of majority vote which suppresses the minority. By such a vote the legislature finally lays down its general policies and gives its instructions to the department to investigate and carry out the policy in detail for the particular cases as they come to the front in the changing circumstances. Here, in the administrative department, there is usually no majority and minority vote—only an economic statistical investigation which finds, for the particular case, the most probable action needed to bring about the results intended by the legislature.

These are the main considerations necessary to build up a practical science of administrative economics, in contrast to the logical deductive science of the nineteenth century based on the presumption of thousands of isolated individual self-interests. Hitherto it had not been practical to consider the development of such a sci-

ence, which deals with individuals subordinated to collective economic action of corporations, unions and governments, because it was probable that the Courts, without economic investigation, would nevertheless interfere with the administrative investigations and decisions. But with the prospect of the Courts' permissive attitude, as formulated by Justice Stone, an administrative science of economics can be gradually built up as an aid to both the public administration by state and federal governments, and the correlated private administration by corporations and labor unions, as well as the advisory agricultural committees and the organized banking system. Yet science can never do away with wisdom and conscience in its use of statistics.

Such a science depends upon the method of reasoning. In the attempted experiment of agricultural adjustment may be seen a repetition of earlier conflicts between the two methods. The older economists and constitutional lawyers might well have looked with fear, as many of them did at the time, upon what the protective tariff might lead to, since the government thereby departed from the extreme laissez-faire and individualistic liberty and self-reliance of their free-trade assumptions. But justices, like other people, may change their minds upon further investigation, and new justices become familiar with what had been fearful when first proposed. In view of such developmental changes, the tariff, in an extreme degree of economic power over prices, accompanied later by extreme immigration restrictions, has eventually been fixed and accepted in the Constitution.¹¹ What had been deemed extreme, or "improbable a few years ago," as Justice Roberts expressed it, is now taken for granted as customary.

This is because the former majority of the Court, in the Agricultural Adjustment case, followed an obsolete method of reasoning for an imaginary isolated farmer, whereas the situation called for concerted action in defense against other organizations. The "call" took the form of a body of farmers sufficient to create a "pressure group" in Congress, supported by the economists and statisticians of an administrative department, and reasoning from the historical parallel of the protective tariff, as well as the immigration laws. They proposed that the government should also use both its taxing power and its bargaining power to place the farmers during an emergency on a parity with the manufacturers and laborers pro-

¹¹ Especially the Immigration Restriction Act of 1923.

tected by the tariff restrictions on imports and the immigration restrictions on labor supply. The older arguments of laissez-faire and self-reliance, although obsolete regarding manufacturers and laborers, whom the government was abundantly aiding against competition, continued to be repeated by Justice Roberts regarding the farmers. To help the farmers during an emergency, either by the use of taxing power or by restrictions of output and increase of bargaining power, might lead to abusive extremes. Justice Stone, in effect, asks Justice Roberts to restrain his fears by examining, economically, statistically, and even historically and comparatively, the actual experiment, along with similar experiments on behalf of others. It is a recurrence of the historical conflict between emotional reasoning from imagined extremes and statistical reasoning from the facts discovered somewhere between the extremes.

Reasoning from actual cases somewhere between the extremes is what is meant in legal science by "reasonable." There had always been, as mentioned above, this other doctrine in the decisions where competition was, in fact, not free and equal but was more or less "monopolistic" or "unfair," namely the doctrine of "reason" or "reasonable value" and "reasonable practices." The courts thereby created, by imagination, it is true, a situation of freedom and equality applicable to the particular case, to be enforced by their legal control, if need be, of the physical force of sovereignty. It was this historic doctrine of reasonable value, to be ascertained in each case as it arose, between the polar extremes of coercion by either of the opposed participants in a transaction, that Justice Stone set forth in reply to Justice Roberts. And it is this doctrine, when aided by statistics, that furnishes the foundation for the alleged fourth branch of American government, already including a dozen departments, commissions and boards, namely the branch of Administrative Economics for the investigation and regulation of similar collective economic action by private corporations and unions.

In this administrative reasoning from actual cases found somewhere between extremes we are, or should be, conformably to Stone's argument, always comparing relatively the gains and losses for conflicting economic interests under actual circumstances in view of their bearing upon the public welfare. In the case of the Agricultural Adjustment Act, if we set up the actual liberty gained by farmers, which is freedom from coercion of prices and wages

received or paid by them during the emergency, over against the economic liberties lost by other members of society, and by themselves, during the emergency, we should have a fair measure of the balanced equilibrium of public welfare intended to be brought about by the statute. This is the economic meaning of Stone's "wisdom" and the legal "rule of reason" when reduced to the economists' statistical "weighted averages," depending also on good judgment of time, place, quantity, kind, and degree of power.

In modern economics the fears are mainly the fear of collective action, whether by governments, or by corporations or unions. All collective action is looked upon with fear as leading straight to dictatorship. But actually, in the cases as they arise, all kinds of collective action can be investigated to see whether, at the time and place, they are conducive to more real and equal freedom for individuals than the types of collective action which they displace. Collectivism and individualism are not incompatible except when reasoning from extremes at either end. There they may lead to revolutions, because the parties cannot agree, and will not submit to majority vote. But between these contradictory extremes of the north and south poles of reasoning are the actual transactions of individuals governed by the actual collective action of corporations, unions and governments, at the time and place. This is the field of institutional economics based on good judgment and full investigation of issues between conflicting interests. It is the problem of administrative economics in actual cases rather than unconstitutionality in all cases.

The problem does not simplify the science of economics: it makes the science more complex and difficult—even vital to existence. But it makes the science less dogmatic and satirical by making it more investigational and practical—perhaps conciliatory.

This is the broader implication of the Agricultural Adjustment case raised by the urgent issue of totalitarian dictatorships. The question is whether, in the matter of corporations, unions and other concerted action, the American government shall follow its historical negative policy of preventing conspiracy and monopoly by legal prosecutions in all cases, or follow, in large part, its positive policy of regulating them according to its historic doctrine of reasonable value and reasonable practices during a time of war emergency as well as credit emergency. This is no longer an academic question of theory; it is a question of survival of the American form of govern-

ment and its system of economics. Justice Stone's opinion lays the legal foundations for this regulation of private collective action by administrative departments, instead of prosecutions by attorneys or suppression by dictators, while the modern statistical science lays the economic foundations. To suggest a paraphrase of the debate between Justice Roberts and Justice Stone, it is a method of "laying down" the American system of law and economics by the side of the totalitarian system, during the emergency, and passing "judgment" on whether, notwithstanding its monopolistic abuses in extreme cases, it "squares" with a "reasonable" approach, under the circumstances, to a "democratic process."

FORTY YEARS OF FARM MANAGEMENT RESEARCH¹

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A COMPILATION of publications dealing with farm management appeared recently.² These cover most of the period during which organized work in the United States Department of Agriculture has dealt directly with the subject. Although admittedly incomplete and limited in scope because it does not include journal articles or other publications of work not in cooperation with the United States Department of Agriculture, the list should be fairly representative of the work that has been done over the entire period. Considering the long leadership of the late Dr. Spillman and the wide range of his interests, it is not surprising that the field covered soon became comparatively broad. The initiation of new kinds of work often resulted in types of work being done by the staff that under later reorganizations of the United States Department of Agriculture were placed in other divisions or bureaus. In spite of these facts, almost the entire list may be organized within a fairly limited number of groups of related subjects. A

¹ Contribution No. 110 from the Department of Agricultural Economics.

² M. A. Crosby and M. R. Cooper, Publications dealing with farm management: 1903-June 30, 1940. U.S.D.A., B.A.E., December 1940. Processed. (Bulletins, processed reports, and articles carried in official publications, prepared by federal farm management workers alone or in cooperation with state and other agencies, and published in Washington or the states.)

The foreword states in part: "The activities regarding farm management and costs now under way in the Bureau of Agricultural Economics are the outgrowth of work inaugurated in 1902 by the late Dr. W. J. Spillman, then Agrostologist in charge of the Division of Grass and Forage Plant Investigations, Bureau of Plant Industry. The Honorable James Wilson, Secretary of Agriculture, in his annual report dated November 29, 1902 (Yearbook 1902) stated:

"... I have approved the establishment within the Bureau (Plant Industry) of an office of Farm Management, which shall have for its object the bringing together in concrete form of all facts developed in the Bureau as a whole, sifting the results, and applying them in a practical way where they will do the most good. To enhance the value of this work general studies have been inaugurated in the matter of securing facts regarding the way in which the best paying farms are managed, and what are the relationships of surrounding conditions, such as proximity to markets, ways of leasing or controlling lands, soils, and climate, and the methods of farming followed."

"Although certain farm management studies were begun in 1902 the formal organization of the Office of Farm Management did not become effective until July 1, 1905. Before that date certain bulletins, circulars, and yearbook separates, prepared under the direction of Dr. Spillman and relating to the work later carried on by the Office of Farm Management, were published as contributions of the Bureau of Plant Industry."

study of successive annual frequency distributions of such a classification reveals the continuity and changes that have occurred from time to time. An examination of the relative importance of the various phases of farm management research should be of interest and value to those wishing to study past developments or future possibilities.

General Trends³

The use of the number of publications as an indication of trends in research has many shortcomings. Some publications represent more research than others. Also, there is considerable lag in the type of publications appearing and the type of projects being conducted. There is many a slip between the enthusiastic planning of a new project and the long, drawn-out coordination of results under the critical eyes of editorial committees representing several agencies. Some manuscripts, like poor souls in purgatory, are doomed to long months or even years of wanderings. Finally, mutilated and dehydrated, the time of greatest interest and value for publication having passed, they come to rest in files or archives, mute evidence of the difficulties of getting great minds to run in the same channel. Some research is not meant primarily for publication. It may be needed to supplement other work, to fill gaps in projects already undertaken, or for other useful purposes. No less a difficulty is the fact that any classification is subjective to a large extent and would vary with the person making the classification. Under such circumstances, the results must be general and indicative rather than exact.

Only three publications appeared in 1903 and only five each in 1904 and 1905. Although the number was quite variable, the trend was strongly upward for the next decade, reaching 27 in 1916 and 25 in 1917. The impetus given by the war culminated in a peak of 58 publications in 1918, but the number dropped back to 25 the following year. The trend was then sharply upward to 1927, when 106 publications appeared. From this high there was an irregular but steep decline to 27 in 1935. Since then, the number has risen, reaching 66 in 1939, the last complete year available for comparison. The total list comprises more than 1,300 titles.

³ For historical sketches of farm economics in the United States see the following: G. F. Warren, The origin and development of farm economics in the United States; E. H. Thomson, The origin and development of the Office of Farm Management in the United States Department of Agriculture; C. B. Smith, The origin of Farm Economics extension, *JOUR. FARM ECON.*, 14(1932): 2-22.

Although of considerable interest, the total number is not so striking as the relative composition of the list. At first glance, one wonders how much can be explained by the needs and adjustments of the times and how much is due to "styles in research." Certainly the popularity of specific types of research waxes and wanes. Even words and phrases in titles which appeared as the shibboleths of publication in one period were studiously avoided in others.

Case Studies

Case studies call for consideration first, not from their number but from their distinctiveness and the fact that they quickly passed out of the picture in the form inaugurated. Warren and others have pointed out the close connection between agronomy and early farm management work. This close connection probably accounts for the rather large number of early titles dealing with forage, range, pasture, and crops. However, the case studies more nearly characterized early farm management work. The first of this type appeared in 1904 (1903 Yearbook) under the title "A Model Farm" by W. J. Spillman. Within the next few years a number of these appeared either under his authorship or general leadership.⁴

No publications were classified under this group between 1913 and 1940. Although some might have been so classified, the viewpoint and general purpose were somewhat different from this group of early publications from 1903 to 1913. They gave way to studies based on larger numbers of farms.

Farm Practices and Technology

The general heading of farm practices and technology is of outstanding importance from the standpoint of continuity throughout the period and volume of output. Practices dealing with crops, livestock, soils and fertilizer, weed control, and a large proportion of the studies on mechanization were included in this group. So constituted, it makes up about one-sixth of the total. The trend in subject matter has been from mostly agronomic subjects toward technology, particularly within the past few years. Beginning with one publication in 1905, the number showed considerable increase within the next few years and might be described as voluminous

⁴ For example: D. A. Brodie, Model plan for a southern farm, Bureau of Plant Industry Document No. 290, 1907; M. A. Crosby, J. F. Duggar, and W. J. Spillman, A successful Alabama diversification farm, Farmers' Bulletin No. 310, 1907.

during the World War period. The number then declined markedly until the latter part of the 20's, when sharp increases occurred. Since 1932 the number has not been great.

Cost of Production and Standards⁵

Cost-of-production studies hold first place in the list under consideration in number of publications, constituting more than one-fifth of the total. The bibliography shows only five titles previous to 1914, with increasing numbers for most of the war years. The decade of the 20's shows a large number, eight years showing 15 publications or more, with some decrease toward the end of the period. It is well known among farm management workers that the war and price-fixing policies for agriculture gave a great impetus to this type of research. The number of projects begun and the size of the budgets employed just following the war were extremely large, both absolutely and relatively. Probably no other type of research occasioned as much discussion and was open to as many misunderstandings and misinterpretations. The group is not entirely homogeneous. Included are enterprise studies and complete cost studies with varied and ingenious schemes of distributions and allocations. Also, toward the end of the period less emphasis was placed on money costs and more on physical quantities of labor and materials required for specified units of production. Emphasis began to be placed on "standards," and selection of enterprises by the cost-accounting method gave way to various types of systems-of-farming and budget analyses. The discussion of technique, theory, and alternatives became so voluminous and at times so bitter that much of the good of such studies was overlooked. According to critics, the number of farms on cost routes was too few for statistical analyses, the detail insufficient for case studies, the set-up unfitted for proper input-output analyses, and the underlying theory of cost and price as well as enterprise selection was faulty. Therefore, it was argued they were of little value even though made at great cost.

With no attempt to evaluate the work as a whole, it might be noted that among other things a more thorough understanding of

⁵ For critical analyses of cost studies and their uses in agriculture, the following may be examined: H. C. Taylor, The objectives in agricultural cost accounting, *JOUR. FARM ECON.*, 5(1923): 65-78; Merrill K. Bennett, Farm cost studies in the United States, Food Research Institute, Stanford University, 1928; J. A. Hopkins and Paul A. Taylor, Cost of production in agriculture, Iowa Agr. Exp. Sta. Research Bul. 184, 1935.

seasonal labor distribution by enterprises was gained than from any other types of studies. This was almost a by-product, if the original objectives of such studies are considered. Some material was also obtained which could be used, although not always the best, for budget analysis. Later studies were usually less ambitious than those of the early 20's, with objectives more nearly within practical and attainable limits.

Farm Business Surveys

From the standpoint of continuity and popularity, farm business surveys deserve more attention than the actual number of publications would indicate. Not all surveys were included here. It was the intention to include only those which covered the entire farm business or were at least fairly comprehensive. Many of these included the familiar Farm Business Analysis of the period. In this particular list the first title occurred in 1914 although some work had been done previously.⁶ Such studies occupied an important place in the farm management research program from 1917 to 1925 and continued to some extent throughout the remaining period. The method of comparison and cross tabulation which was most characteristic of the survey data analysis also was applied to data obtained from account books. Later refinements in methods such as simple, partial, and multiple correlations occurred in some publications. The bibliography probably underemphasizes this group since nearly every agency that did any farm management work made some surveys. Criticism of the work has been leveled at both the method of sampling and the analysis as usually done.

Systems of Farming

The methodology of systems-of-farming publications was not always the same. These publications occurred throughout the period but were particularly numerous from about 1923 to 1930. Some of these publications resulted from changed objectives of projects originally designed as complete cost projects. Later publications were in close connection with type-of-farming studies or were descriptions of systems of farming within specific areas. While much of the work was descriptive, there usually were attempts to show the relative profitableness or desirability of particular systems.

⁶ G. F. Warren, op. cit.

*Types of Farming and Land Use Planning*⁷

In 1909 (1908 Yearbook) there appeared an article, "Types of Farming in the United States" by W. J. Spillman, which contained some of the germs of type-of-farming research which was getting under way 20 years later. Wilcox credits Spafford of Nebraska with the first type-of-farming bulletin in 1919.⁷ However, this research evidently was not in cooperation with the United States Department of Agriculture. The next entry occurred in 1923: "Distribution of Types of Farming in the United States," Farmers' Bulletin 1289 by W. J. Spillman. Another publication occurred in 1927, two each in 1928 and 1929 and four in 1930, with several others closely related. A fairly continuous stream occurred after 1934, probably encouraged to a considerable extent by Elliott's census monograph⁷ which appeared in 1933. The number of publications in any one year was not large. However, there are practically no short, processed reports to pad the list as there are in some other classifications.

It is difficult to evaluate type-of-farming research, for several reasons. There are a number of closely related lines of research to which these studies have contributed. Shall all studies in comparative advantage and inter-regional competition be ruled out of type of farming because an approach is used different from that used in the bulk of type-of-farming publications? Systems-of-farming studies and some adjustment problems have been improved by having a type-of-farming foundation, even if type-of-farming areas are not completely homogeneous. Other forms of research have been undertaken, either by type-of-farming areas or by type of farm. Also, type-of-farming research occupies an important place on the family tree of land use planning.

Outlook and Situation

More than passing attention should be given to the outlook and situation group, although it was a comparatively latecomer and disappeared, as such, before the end of the period by way of "transfer and reorganization." Although a few scattering publica-

⁷ Brief sketches of type-of-farming studies are found in: F. F. Elliott, Types of farming in the United States, 15th Census of Agriculture, Bureau of the Census, 1933, pp. 1-4; I. G. Davis, Types of farming and type-of-farming areas in Connecticut, Storrs Agr. Exp. Sta. Bul. 213, 1936, pp. 122-142. For a critical article, see: W. W. Wilcox, Type of farming research and farm management, JOUR. FARM ECON. 20(1938): 417-429.

tions might be placed under this classification before 1922, the outlook reports and discussion of the agricultural or commodity situations became significant in the early 20's. The inauguration of this work broadened the scope of other types of research such as that on adjustments and program planning. This broader outlook undoubtedly affected the group of publications which may be called "area analyses," in which a larger group of economic factors affecting selected areas were analyzed than previously had been undertaken. Beginning in 1924, area analyses were important in volume for only a few years, but scattering examples continued to the end of the period under discussion. Also, there began to appear more thorough analyses of all factors affecting one commodity, whether in one area or a number of areas.

Adjustments and Shifts⁸

Adjustments and shifts comprise a group which is somewhat elusive. Titles, including suggestions of adjustments or shifts in agriculture, occurred frequently from the middle 20's to the end of the period. Certainly, this was a period of adjustment and if all publications dealing with some phase of the adjustment problem were included, many publications placed in other groups would have been placed here. For example, those publications dealing with farmers' response to price may explain the reason for or need for certain adjustments. Many of the studies called area analyses also may deal largely with adjustments. If desired, it could be made almost all-inclusive for the past 15 years with good reasons for most entries.

Action Programs

There was never a more abrupt turning of research to any general class than that represented by action programs. For the last five years those publications dealing with such subjects as rural rehabilitation, soil conservation, and various phases of the Agricultural Adjustment Administration have practically monopolized the field. Not only was there much direct research done here but

⁸ For a better understanding of this phase in farm management, the following articles are helpful: W. E. Grimes, *Studies of agricultural adjustments as they affect individual farms*, *JOUR. FARM ECON.* 7(1926): 166-173; E. G. Nourse, *Fundamental significance of the agricultural adjustment concept*, *JOUR. FARM ECON.* 18(1936): 244-256.

attempts were made to adapt considerable data originally intended for other purposes. The idea seems to be widespread that if the research of the past is not adaptable to some form of action program, the time spent in obtaining the data is practically wasted; and that if new projects fail to offer answers to the immediate pressing problems of the day, they should be considered of questionable value. The line between research and service often has been loosely drawn, but recently there has been a tendency to think of research as service and service *now!* Under such circumstances the temptation to do "jackrabbit" research is great. The jackrabbit has his feet on the ground at times and covers much territory but misses a lot between jumps. This may have been unavoidable when so many questions have been pressing for immediate answer. Whatever help could be rendered might improve planning or administrative procedure, action of some type being imperative.

Miscellaneous

A number of lines of work may be mentioned as miscellaneous, the fact that only a few publications have appeared on a particular subject being no indication of lack of significance. For example, there were a number of publications on farm income after 1913. Another group may be called general and technical. Some of these were general surveys of the field or technical publications on methods or procedure.⁹ They may apply to a number of groups as classified above. Their importance as a group is unquestioned. Others are sometimes placed in fields other than farm management. Among these may be placed publications on credit and insurance, land values, and tenure and leases. A few might be termed price analyses although the connection with farm management is close. Included in this category are those referring to farmers' response to price. The close connection here with agricultural adjustments and type-of-farming research has been mentioned.

The small number in certain groups may attract some attention. For example, some subjects usually found in text-book headings have few representatives. Included in these are such subjects as selecting a farm, diversity, size of farm, farm layout, farm labor, and selection and combination of enterprises. This is due in part to the method of classification, in part to the fact that they occur

⁹ For example: W. J. Spillman, Suggestions concerning checking and tabulating farm management survey data, U.S.D.A. Farm Management Circular No. 1, 1916.

as minor parts of broader discussions, and in part to lack of extensive considerations by farm management workers. Selection and combination of enterprises is often included in systems of farming. There are few representatives of such subjects as true "input-output" studies, comparative advantage, and inter-regional competition. Such research is highly technical and usually could form only a minor part of a research program from a volume standpoint. There are some representative publications on farm family living, but the subject is sometimes discussed as parts of other studies. Both simple and complete cost accounting have furnished data for studies under various classifications. Much of the Farm Bureau-Farm Management work has not been in cooperation with the United States Department of Agriculture, so has few representatives on the list of publications considered. Graphic summaries are closely akin to agricultural geography and type of farming.

Tools and Technique

A bibliography usually is not the source of much valuable information on tools and techniques in research. However, even a slight acquaintance with the general contents in the groups of subjects indicates the changes in method as well as programs of research. In general, the list is familiar: The case method, the survey with cross tabulation, simple, partial, and multiple correlation, simple and complete cost accounts as sources of data, standards, and farm budgeting. The greatest criticism probably has been on methods of sampling and lack of proper tests of significance. It has been shown that survey farms have often been larger and better than the average. Farm account farms have shown even a more pronounced tendency in this direction. Sometimes the universe has not been well defined and results have been applied to unadapted purposes.

Cross tabulation has been generally criticized, usually from the standpoint of groups too small or non-homogeneous. More correlation was suggested and much was done.¹⁰ Multiple and partial correlation were extremely difficult to interpret in farm manage-

¹⁰ H. R. Tolley and S. W. Mendum, A method of testing farm-management and cost-of-production data for validity of conclusions, U.S.D.A. Dept. Cir. 307, 1924; H. R. Tolley and Mordecai Ezekiel, A method of handling multiple correlation problems, Quarterly Publication of the American Statistical Association, December, 1923, pp. 993-1003.

ment studies, primarily because of the large number of variables needing consideration.

The farm budget analysis appears to have been the most useful tool or technique. It is applicable to a wide variety of uses in testing the value of farm practices, choice and combination of enterprises, and farm adjustment or program planning under different assumptions. It also avoids some of the fallacies which developed thru the use of the cost-accounting and statistical methods.

For the period as a whole, the greatest shortcoming in methodology in general seems to have been too little attention to what might be called "experimental design." This means more than sampling. In many cases projects have been started without a proper understanding of the questions they were designed to answer. Neither the universe nor objectives were defined with enough care. Another shortcoming was the use of data obtained for other purposes or merely obtained and then an attempt made to use it to answer specific questions to which it was never adapted. Much account book material falls under this classification, but it was by no means the only offender. The use of such data often results in manuscripts being held up by editorial committees because of lack of desired analysis when the fault was in the data used and might have been forecast before the work began. This is not to say that much adaptation of data is not possible but that only moderately good results are often probable. However, in the progress of the period greater use of both statistical methods and economic theory as tools is apparent.¹¹

¹¹ For recent developments see: Sherman E. Johnson, Recent trends in farm management, U.S.D.A., B.A.E. (processed) 1941.

PROPOSAL FOR REVISION OF AGRICULTURAL STATISTICS¹

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THE fame of *Agricultural Statistics*,² until 1935 part of the *Yearbook of Agriculture*, dates back decades. It is not only one of the earliest publications of its kind, but it occupies an outstanding position also with reference to its comprehensiveness, the 1941 issue containing 832 tables on 731 pages. Nothing even remotely comparable exists with reference to circulation of *Agricultural Statistics*. Thus, the next issue of this publication—the 50th—will be a very significant jubilee.

The present huge volume of *Agricultural Statistics* developed from very tiny beginnings. The 1894 (or first) issue of the *Agricultural Yearbook* was a hasty trial; the statistical portion occupied only about 13 pages. But the second issue of the same statistics, 1895, also covered only a few topics on 32 pages. In spite of the enormous increase in comprehensiveness over the period of 48 years, a considerable amount of needed data is still missing, while the organization of the material remains substantially the same. Open the issues of 1895 and 1940, and you will find that the present palatial building is still entered by the very narrow door of individual crop statistics which led into the shack of the old days.

From time to time an abode has to be torn down—basement and all—if the inhabitants want to keep up with the requirements of time. This is especially true when the requirements and means of the inhabitants have increased so enormously as did the requirements for statistics and the means put in the hands of statisticians for satisfying this demand in the past 50 years.

The most recent great upswing in the requirement for agricultural statistics occurred in the wake of the unprecedented depression of the 1930's, and great additional means were made available for it. It was not only a quantitative increase. As never before, the new demand was not so much for data on individual crops, but primarily for information on agriculture as a whole. This new demand necessitated substantial changes even in the publications of coun-

¹ Thanks are due to the great number of agricultural economists who commented on this article.

² Yearly publication of the U. S. Department of Agriculture, Washington, D. C.

tries, the statistics of which, even before the depression, contained much information of general character.

Even greater changes were needed in *Agricultural Statistics*, the principal feature of which always was priority of individual products. Much was done to remove this defect. But summarized data for groups of products and agriculture as a whole still are treated niggardly. In many cases these are entirely absent or, if present, are given in abbreviated form. Such data, moreover, are consistently put in the inconspicuous place after the individual products, in spite of the fact that perhaps in no other country is the habit so imperative of having the more general and more important at the head.

To subject all the material in *Agricultural Statistics* to a thorough reconsideration would be the most worthy form of celebration of its 50 years existence. The most productive form of participation in this celebration for anyone is to help to make the 50th issue as perfect as possible. This paper is the contribution to this celebration by the present writer and those who advised him. But it was impossible to set up a complete plan of the new *Agricultural Statistics*. The proposed scheme of organization of the material is considered more or less definite merely with reference to crops. Even if the writer were able to give the time for going over all the 832 tables of the 1941 issue of *Agricultural Statistics*, he would fail to make all the possible suggestions for improvement, because of insufficient knowledge of the special problems of many agricultural products. The reader will notice that the remarks in this article are bunched on certain general problems of agriculture and on certain groups of vegetable products, mainly grains. Space limitations also were a factor.

Purpose

The obvious purpose of agricultural yearbooks for an individual country is to provide a very wide circle of users with up-to-date statistical data on the agriculture of that country. For the very reason that the mass of the users is very broad, the yearbooks must contain all the pertinent statistical data. A user, especially in a foreign country, cannot be expected to have at hand also the other statistical publications of the country involved; from the annual volumes of *Agricultural Statistics* alone he must be able to obtain all the information of not too-specialized character. Even

agricultural economists working in government offices of the country involved, to whom census reports and other official publications of the same country are easily accessible, greatly prefer to have all pertinent data on agriculture handy in one book in up-to-date form. The Yearbook Statistical Committee goes even further when it states.

This volume brings together what seem from experience to be the most important agricultural statistics of the United States and of the world so far as this country is concerned. (Page 1.)

The purpose of the reference to experience in the above quotation apparently is to indicate that those statistics are included for which experience has proved the existence of demand. But experience also shows that there is a great deal of statistics and other things for which there is no demand, only because the users do not know about their existence. Books, particularly, are for drawing attention to things unknown, and yearbooks need not be exceptions in this regard. A good example of statistics for which there is no demand in this country, only because the users do not know of their existence, are the indexes of world agricultural production compiled by the League of Nations, but many others could be cited.

There are further requirements to *Agricultural Statistics* which are not mentioned in the introduction of this book but which, the Committee will agree, are pertinent. The broad mass of users of *Agricultural Statistics* include those experienced in statistics and those who are not. Most of the users have no possibility to undertake complicated computations. Hence, the data have to be presented in as simple form as possible and—this is particularly important—in as digested form as possible. For this particular publication it is necessary to stress also the requirement that the material must be arranged in as logical and convenient form as possible. (The most logical form usually is also the most convenient.)

Material

Missing material:—We come across the disregard of general information in *Agricultural Statistics* right at the beginning—not at the beginning of the present volume, it is true, but of what should be its beginning. If *Agricultural Statistics* contained merely 50 rather small pages, it should not have failed to have a table on land utilization in the United States, showing how the total territory of the country is distributed between the major uses. This information

is needed by anyone interested in agriculture, and, when I say agriculture, I mean agriculture and not wheat, wool, or any other of the many farm products. The *International Yearbook of Agricultural Statistics*, by the International Institute of Agriculture in Rome, devotes only a few pages to each specific country and to some of them only 1 or 2 pages, but data on land utilization are given for all countries for which they are available. The *International Yearbook* indeed is a good source to look up land utilization of the United States, even when one lives in Washington, D. C., because there it is presented in comparable (so far as possible) form with similar data for other countries.

Agricultural Statistics contains a great deal of information on foreign countries, but vainly one will search it for any basic data in this respect. Is production of all farm products in the world increasing or declining, and what is the approximate rate? Are prices of all agricultural products outside of the United States moving in the same or in the opposite directions than here? What is the trend of the international trade in farm products? These are undoubtedly three basic questions, and nothing can be found in *Agricultural Statistics* on this score.

It is not absolutely necessary that the Department of Agriculture make these computations itself. The League of Nations computes indexes of world production, trade, stocks, and prices of foodstuffs and raw materials of agricultural origin; these could be conveniently reproduced in *Agricultural Statistics*, as there are many other statistics included, not compiled by the Department. Indexes of world prices of 9 foodstuffs and 5 raw materials of agricultural origin, as well as of world stocks of agricultural products, for several years past have also been computed by the Institute of Business Research, Berlin. To enable the comparison of the price indexes of agricultural products in the United States and abroad, it would be desirable to compute a set of world price indexes with the same weights which are used for the U. S. price index.

If space in *Agricultural Statistics* were really scarce—as a matter of fact it is spent lavishly—all the general data on world agriculture could be compressed into one page; but much greater detail is desirable.

Such data as size of farms or distribution of land operators among owners, tenants, and sharecroppers are doubtless some of "the most

important agricultural statistics." Yet, all general information that can be found in this book on the organization of farms and total land in them is the number of farms by States (table 670). In addition, there is a great deal of information on specific subjects—some of them in very great detail—such as percentage of farms changing ownership by various methods (table 711), farm-mortgage indebtedness and land-taxes, etc., (tables 719–50), for rural electrification (tables 751–53). Thus, you know the percentages of farms changing ownership; but you do not know how many farms are owned. In this connection it is noteworthy that no information is provided on the number of hired farm workers, their distribution over the country, and changes over time. Due to the accelerated mechanization, the agricultural depression of the 1930's, and the functions of the agricultural programs, changes of vital importance occurred recently in employment of hired farm labor and—in the South—also in the proportion of land operated by tenants and especially sharecroppers.

If a detailed table on land utilization were provided, it would contain, among other things, information on pastures. Even in this case a special table on the acreage in pastures, showing its distribution by categories and States, would be indispensable. All one finds in *Agricultural Statistics* on pasture is its condition first of month, 1928–37, by States (tables 423–24) and number of livestock grazed on the National forests by years (table 790) and States (table 791). Thus you know the condition, but you do not know of what.

Without any apparent reason, *Agricultural Statistics* contains no data on flour production in the United States, although it contains data on many goods processed from farm products. Few realize that the bread-baking industry of the United States is subject to a very large influence of general business conditions; per capita commercial bread production declined by more than 20 percent in the short span of 4 years from 1929 to 1933. *Agricultural Statistics* does not contain these interesting data. A table showing the quantities of the major baked products in the whole country would occupy about a third of a page, because these data are available only for odd years and only since 1923. The Yearbook Statistical Committee cannot claim that bread production is the second step of processing (the first is milling), with which this book is not concerned, because it contains the retail prices of bread (incidentally, without indication of the type of bread; see table 28). Data on the

production of alimentary pastes, beer, and liquor likewise are absent.

A great deal of material is compiled in *Agricultural Statistics* for each of the several grains. At the head of the portion devoted to each grain is a table, presenting the pertinent data on acreage, yield, production, exports, imports, and prices, for as long a period as three-quarters of a century; each such table occupies about 2 pages. Other statistics of wheat, for example, occupy another 20 pages. But the reader will not find anything on total grain production in the United States—information contained in statistical publications of most foreign countries, even in those which consist of only a few pages. Whoever wants to know how much grain is produced in the United States has to pick out the data for the several individual grains, convert them to a uniform basis, and add together the figures obtained—quite a job for those who do not have calculating machines. The situation is exactly the same with reference to the trade in and consumption of grain, except that the consumption of grain for alcoholic beverages and the supplies (but not production) of feed grains are given. It is very significant in this connection that *Agricultural Statistics* does not know the term “grain”; it is always “grains” there.

It is absolutely indispensable to have acreage, production, trade, and consumption of *grain* in the United States for as many years as possible. It would be desirable to have the data subdivided into bread and feed grain. Data on food consumption must be subdivided into consumption for food proper and for drink; food consumption must be furthermore in terms of grain, milled products and baked goods. Data on the consumption of bread would reveal the significant fact that the decline in the per capita consumption of bread was less than appears from the data for wheat and flour, because the content of ingredients, other than flour, in bread increases rather rapidly.

Likewise very desirable are totals on world production and trade of grain, or at least of the five major grains (corn, wheat, rye, oats, and barley). Per capita consumption of grain and the more important grains in the important countries of the world likewise would be very useful; for wheat, the computations of the Food Research Institute could be used.

The material on oils and fats in *Agricultural Statistics* is better than that on grain. It contains data on production, trade, stocks

and disappearance of compounds and vegetable cooking fats (table 510) and on the use of oils and fats in the production of compounds and vegetable cooking fats (table 511) and soap (table 52). But no data on total production, supplies and consumption of fats and oils, subdivided by type of product and type of use is provided. It may be added that the users of statistical yearbooks are rarely familiar with the great number of existing oils and are practically helpless in filling out the gaps in the statistical material themselves.

With reference to the international situation in oils and fats, not only does *Agricultural Statistics* not provide summarized data for the group of these products as a whole, but even the data for individual products is incomplete. Among the many missing oils is palm oil, palmkern oil, and whale oil. The international trade in oils and fats and their supplies in the most important (from the point of view of international trade) countries and in all of them are expertly compiled by several agencies. One of these computations can be reproduced in *Agricultural Statistics*, if the Department does not want to undertake the compilation itself.³

In a similar manner it seems desirable to have data on per capita consumption of all kinds of sugar in the United States, and of cane and / or beet sugar, meat, milk, butter, cheese, and as many other products as possible, in the more important countries of the world. Tables on total production of fruits and vegetables in the United States by groups of products are also needed.

It is a rather important shortcoming of the livestock-number statistics of the census that only two age groups are distinguished. *Agricultural Statistics* omits even this subdivision for cattle, horses, and mules, while the number of lambs is given only for two years.

I am advised that country and packer prices of hides in Chicago—the only data on hides and skins in this book in addition to figures on imports into the USA—do not exhaust the material which should be included.

Dispensable material:—All the suggested tables and many more necessary and desirable would, of course, require space; but for that matter *Agricultural Statistics* need not become more volumi-

³ Speaking of oils, the rather strange terminology of Agricultural statistics may be mentioned. The word "oilseed" is used to designate any kind of oleogeneous material, even olives and copra (copra is pieces of a fruit—fruit in botanical sense—from which all seeds were removed). This disregard of botanics seems not inevitable. In any case, it has at least to be explained somewhere. The seed of the flax plant is called flaxseed; the products of crushing this are, however, linseed oil and linseed-cake in the terminology of Agricultural statistics.

nous. There is a great deal of material in it which is of too special interest or is presented at too great length. The advisability of presenting in each issue the pertinent data, year by year since 1866, for a considerable number of crops and each kind of livestock seems very doubtful. To spend one-and-a-half pages on such data for buckwheat can certainly not be justified.

It is not clear which purpose may be served by the closing prices of wheat futures in Chicago on each Friday in 1938-39 (table 25), occupying a full page. Volume of trading in wheat-millfeed futures, monthly since 1932 (table 31), and in potato futures, monthly since 1933 (table 348), are unlikely to interest many. This list could be continued.

Part of the enumerated and many other data could be omitted without great loss. Another part should be presented in a more compact form; we discuss this matter in the next section.

Form

In discussing the purpose of *Agricultural Statistics* the wish was expressed that agriculture as such and groups of farm products should occupy a more prominent place than they do now. This was equivalent to asking for a more elaborate, more digestible, form of presentation. But considerably more elaboration and digestibility is desirable also in many more respects.

Averages vs. annual data:—Tables giving yearly data since, say 1866, occupy a great deal of space; yet only few have use for such almost endless rows of figures; and these few are likely to be able to obtain the needed data from other sources. Should it be recognized, however, that the need of such users cannot be disregarded, this need can be fully satisfied by including those long tables in each fifth or tenth issue of the book. Most users greatly prefer typical data. Five-year averages, for the more distant time even 10-year averages, serve their purpose much better. The considerable amount of work needed to compute from the data of *Agricultural Statistics* the total grain production of the United States was stressed before. Imagine the position of the user if he wants—and mostly he really wants—this information as an average for 5 or 10 years. Without a clerk or calculating machine, he will be rather helpless.

Smaller tables than those discussed in the preceding paragraph also can be made much handier by the use of averages—with con-

siderable saving of the users' time and of space in the book. Table 2, for example, gives seeded and harvested acreages and other data for winter wheat by years since 1909. If you want to know the part of the seeded acreage, which under normal conditions may be expected to remain for harvest, you have to average the seeded and harvested area for at least 10 years. Table 2 would be much more useful if the yearly data for the more distant 20 years (1909-28) were replaced by three 10-year averages (1909-18, 1919-28 and 1929-38), and 17 lines would be saved.

The savings attained by using averages rather than yearly figures would offset a great deal of space needed for the missing material.

Yearly vs. monthly data.—The compilers of *Agricultural Statistics* seem to think that, if on a certain matter they have no space or information in detail (by States or months), they would rather not publish anything. Yearly prices of 10 flours differing in grade and market may be more useful for many purposes than the one monthly series published, which at best can be typical for flour from wheat of one class. The writer personally would rather have such a yearly series for different grades and markets and a monthly index constructed from the different series than two monthly price series. Incidentally, the only series of prices included in the index (table 27) is for a flour from hard spring wheat—the type of wheat subjected to the greatest year-to-year variations in production and price; secondly, it is a price of a family patent flour and thus no price of bakers' flour is included in *Agricultural Statistics*.

Units of weight and measure.—We have to return again to the problem of the user of the book: Is each part of *Agricultural Statistics* used primarily by those dealing in the specific product or by outsiders? For example, are walnut statistics more used by producers and traders of walnuts than by others? The answer is very important. Those dealing in walnuts want their statistics in the units of weight or measure customary in the trade; outsiders want them in units they can visualize, and a person outside of the trade does not visualize such units as crate, western crate, box, lug box, suitcase box, tierce, carlot, and many others.

Different units of measure or weight are a great hindrance to research. It is not only a matter of additional work and time. One cannot permanently multiply, divide, and add; one has to be able to visualize. And with the bushel of grain varying from 32 pounds to

almost double this figure (60 pounds), one does not visualize the relative importance of each grain in production or the relative price relationships. One gets the greatly harmful habit of thinking that corn is always more expensive than oats because a bushel of corn always costs more than a bushel of oats.

Those interested in special products usually have access to special publications. Yearbooks are primarily for outsiders. Yet *Agricultural Statistics* strictly adheres to the units used by specific trades. One even cannot help feeling that the Yearbook Statistical Committee takes pride in handling a great deal of units of every kind. Not only each major grain of this country (wheat, corn, barley, and oats) is measured in bushels of different weight, but dozens of different boxes, crates, carlots, and the like are found in the statistics of fruits and vegetables. Four different units (carlots, bushels, boxes, and barrels) are used in the apple statistics alone. The international trade in oranges is in boxes; that of oil cake, a cheap product, in pounds; that of walnuts, an expensive product, in tons.

The writer would congratulate the Committee heartily if, one of these days, he opened a new issue of *Agricultural Statistics* and found all grain statistics in the same units, for example, in centals. This may sound like a sacrilege, yet this sacrilege is done every day by the conservative British. Grain is sold by the quarter, varying in weight for different grains, but statistics are in hundred-weights (unfortunately hundred-weights of 112 pounds, 1/20 of an English ton).

Diversity of units of measure and weight cannot of course be avoided entirely, but statisticians have to make every effort to reduce it to a minimum.

Organization

A friend complained about difficulties in finding the material included in *Agricultural Statistics* and went so far as to say that the index of the book is the worst he ever came across. The writer agreed that the index might be improved. Surprising as it may seem, the index does not contain such words as consumption, utilization, foreign trade, international trade, or supplies. If you want to know the consumption of farm products in the United States, you have to go over all individual products. The following words also are absent in the index: labor, linseed, tallow, rayon fiber, beer, alcohol, liquor, starch production, and many others.

Considerable space is wasted and confusion created because of public-school-teacher pedantry in the index; instead of listing all references to eggs under "egg" or "eggs," or "egg and eggs," part of the references is listed under "egg" and another under "eggs," with the references to the word "eggplant" interposed between them. Similarly, you find the word "farm" and at some distance "farms," "fertilizer" and "fertilizers," and the like.⁴ Instead of saying "oil cake, see oil-cake meal" or vice versa, the references are repeated, but not fully. Similarly, there are the words, cottonseed cake and cottonseed meal, linseed cake and linseed meal, and so on, although the references under each two words are mostly the same.

While improvements in the index are easily attainable, the principal weakness of *Agricultural Statistics* is in the organization of the material. It is difficult to prepare a good index even to well-organized publications, especially as those preparing the index are usually given little time.

Of yearbooks:—The natural start of any publication is to describe the atmosphere in which you expect to move. For example, every publication on crop production, good or bad, small or large, begins with soil and climate—the atmosphere in which the crops live.

In the same manner every statistical yearbook starts with territory and population; see, for example, the *Statistical Abstract of the United States*. For a yearbook on agriculture, this means total land utilization and farm population, the principal resources and those who directly utilize them. As there is no reason to place soil at the end of a treatise on agriculture, the greatest among agricultural yearbooks (*Agricultural Statistics*) ought to follow the common standard of beginning with land utilization and farm population. Although climate is frequently dealt with at the end of agricultural yearbooks, it may with considerable justification be put in with total utilization and farm population, but we do not insist on this.

After land utilization and farm population and perhaps climate, one naturally expects to find information on the farm—the organization through which the contact between the land and the man is established. The following topics belong here: Number and size of farms; farm tenure; hired farm labor. Then come farm techniques and farm credit. After this, there is a choice between starting with actual production or first discussing prices, farm returns,

⁴ The best form for such references would be egg(s), farm(s).

and similar matters. Logically, you first expect to produce something before selling it and getting a return, but on the other hand, prices largely determine what is grown.

Crop production naturally precedes animal production; the animals eat what the soil yields.

For the presentation of the data on production, trade, consumption, and prices, the compiler has a choice between first having the data on production of all products and then performing the same with trade, consumption, and prices. The alternative is an arrangement by products, taken up one after another, with all evidence pertaining to each product bunched together.

The first arrangement is doubtless very simple. Its other great advantage is that repetitions are avoided. One does not have such smooth running in the arrangement by products. Although data on prices for example, are given for each product or group of products in the sections devoted to the specific products, there still remains something to be brought on prices in general. The same is true of production, trade, and consumption. If repetition should be limited to a minimum, the residual sections on production, trade, consumption, and prices must be very fragmentary. But many compilers correctly consider repetitions a lesser evil.

Since space is an important consideration, the first arrangement is the one usually followed. The second one, however, is preferable from the point of view of the users. Many of these—at a time at least—are interested in one product or a group of products only, and in the second arrangement they do not need to search the whole book for the needed information. A big additional advantage of the second arrangement is that it permits the use of separates; where the yearbooks are widely distributed, it is a considerable saving if part of the prospective users may be satisfied with separates rather than whole books.

The arrangement by products naturally becomes an arrangement by groups of related products. But what is a related product or, more correctly, which relation is the more pertinent one? The problem is especially complicated in case of by-products. Soybeans grow in the field; the olive on a tree; cottonseed is a by-product of a crop, while lard and tallow are by-products of the animal husbandry. Yet, all of them are a source of fat and from the economic viewpoint they belong together. Similarly, cotton is a crop, silk an animal product, while wool is a by-product of the animal hus-

bandry. If it is believed that crop and animal production have to be strictly separated, silk and wool will not be found together with the fibers of vegetable origin. Perhaps because the writer is an economist, he places economic relation of products above the technical relation.

It is obvious that, in the usual arrangement where the data on each product are spread over the whole publication, those data have at least to be brought together in the index. From this, the user should be able to know quickly where all the material pertaining to each product may be found. Similarly, with an organization by products, it is very important to have in the index such words as consumption or utilization, under which all products should be filed for which respective data are given in the book.

Of Agricultural Statistics:—The aims of *Yearbook of Agriculture*, U. S. Department of Agriculture, were big from the start; "it has been sought to make the volume a concise reference book of useful agricultural information," said the preface to the 1895 issue. But the requirements for statistics were modest at that time. The 1895 issue did not contain anything except production data for six crops, livestock numbers, prices of a few farm products, foreign trade of the U. S. in agricultural products, and weather data. The only data pertaining to agriculture as a whole were the totals of agricultural imports and exports. It was natural to start the statistical part with individual crops.

Agricultural Statistics still starts with individual crops, although the modest appendix gradually has become a big volume and a great deal of information of general character has been incorporated. This was put at the back, under the title, "Miscellaneous Agricultural Statistics," together with a great deal of data of a special nature. The only later change was that that part of this heterogeneous material, which has general character, was separated under the title, "Farm Business and Related Statistics," while the remainder still forms the "Miscellaneous Agricultural Statistics."

It is hardly necessary to say that the title, "Farm Business and Related Statistics," is rather indefinite; the whole book could well be called "Farm Business and Related Statistics." In the 1941 issue this section occupies 106 tables on 136 pages. The table on land utilization would have been here, if it were included at all. Here (tables 678-681), we find the data on farm population. Crop

and livestock summaries, which naturally should precede individual products, move up, and so on.

The last section, "Miscellaneous Agricultural Statistics," in 57 tables covers such heterogeneous ground as weather, forestry, machinery, fertilizer, cooperative extension work, highways, and even materials used in soap production.

The botanical group of cereals (grain) which includes, of the most known species, wheat, rye, corn, rice, oats, barley, sorghum, and millet, is an entirely distinct one also from the economic point of view. An exception is correctly made for buckwheat which, botanically, is not a cereal but occupies a very similar position in both production and consumption. The only justification for including flaxseed in the section devoted to grain is that this was done many years ago. Flaxseed is not a grain, as the word itself implies; and it is grown as a source of fat rather than carbohydrates.

If flaxseed is a grain, the soybean and peanut are grains, too. Yet in *Agricultural Statistics* they are among the miscellaneous crops although all three crops have the same function of providing oil and, as a residual, protein feed. Another source of fat, the olive, is under fruits (because it is grown on trees), cottonseed is under cotton statistics, and lard in hog statistics. In this way, the statistics of oils and fats are dispersed over the whole book; oils used in manufacture of compounds and lard under "Hogs"; international trade in copra (table 665) under "Foreign Trade," oils used in soap production under "Miscellaneous Agricultural Statistics." While such an arrangement is a great inconvenience for those possessing the whole book, those having only separates of individual parts are obviously helpless.

Similarly, a person having a separate on cotton will find there data on rayon, silk, and jute, but not wool, which is with sheep statistics. Supplies of oilcake for domestic use (table 149) are under grain statistics, international trade in the same product under foreign trade in agricultural products. This list of discrepancies could be continued almost endlessly.

Proposed organization: Tentatively it is proposed to subdivide the material of *Agricultural Statistics* into 27 chapters or sections. These are as follows: (1) Land Utilization and Farm Population; (2) Farm Organization; (3) Farm Techniques; (4) Farm Credit; (5) Production Summaries; (6) Grain; (7) Dry Legumes; (8) Feed

Concentrates; (9) Hay (and forage-plant seeds), and Pasture; (10) Oils and Fats; (11) Fibers; (12) Sugar; (13) Tobacco; (14) Tree and Bush Crops; (15) Vegetables; (16) Miscellaneous Crops; (17) Forestry; (18) Animals; (19) Meat Statistics; (20) Dairy Statistics; (21) Poultry Statistics; (22) Foreign Trade; (23) Prices and Costs; (24) Farm Income; (25) Conservation Programs; (26) Miscellaneous Statistics; (27) Climate. Section (18) Animals should perhaps be split up into 3 to 5 sections.

The present volume has only 9 sections as against the proposed 27 or more. This large increase is considered an advantage. The *Statistical Abstract of the United States* is subdivided into 34 sections, with the number of tables only slightly higher (890). The last edition of the *Commerce Yearbook I* (1932), while being much shorter than *Agricultural Statistics*, consisted of 21 chapters. The insufficient number of sections in the present *Agricultural Statistics* necessitates crowding individual sections with heterogeneous material. This is particularly true of the section "Farm Business and Related Statistics," "Statistics of Miscellaneous Crops," and "Miscellaneous Agricultural Statistics." The first one disappears entirely from the proposed scheme, while the two others are greatly cut down; from the 65 tables of "Statistics of Miscellaneous Crops," for example, will remain but 5, after dry legumes (peas, beans, etc.), as well as hay, pasture, and forage-plant seeds will form separate sections, while soybeans and peanuts will be included in the section "Oils and Fats."

In the proposed plan of reorganization, the sections devoted to individual products which do not start before Section 6 are preceded by Section 5, "Production Summaries." Each group of economically similar products is brought together into a separate section, regardless of whether the products are vegetable or animal products, are grown in the field or on trees, are principal or by-products. Thus lard and tallow is in the section "Oils and Fats," silk and wool in the section "Fibers" and the like. Summaries for each group of products are at the head of the respective sections.⁵

Inaccuracies

It is obvious that only a few inaccuracies can be listed; they all involve bread grains, the special field of the present writer.

⁵ A detailed table of contents can be obtained from the writer through the JOURNAL or the Statistical Yearbook Committee of the U. S. Department of Agriculture, which is in charge of Agriculture statistics.

World-grain-production series:—Tables 5 and 36 of *Agricultural Statistics* give series for wheat and rye production in the world and selected countries since 1894; the tables contain totals for Europe excluding U.S.S.R., and Northern Hemisphere and the world, both excluding U.S.S.R. and China. In all cases the mistake was made of excluding the production of U.S.S.R. without regard to the changes in its territory. The territory lost by Russia after the first World War happens to be a heavy rye producer,⁶ in fact, so heavy a producer that, while the data in *Agricultural Statistics* show a larger world production of rye in recent years than in the years before the first war, actually the opposite is true. If the compilers could not obtain data for the territory lost by Russia after the first World War for all years since 1894, they had either to compile their data for the world as a whole, including U.S.S.R. (Russia), or to interrupt the series, giving for 1909–13 two sets of figures; the one would exclude Russia in pre-war boundaries and be comparable with the data for the preceding years; the other would exclude Russia in the U.S.S.R. boundaries and be comparable with the data for the succeeding years.

The mistake arising from disregard of changes in Russian territory is less detrimental in case of wheat. The fact, however, is that the wheat series of the Food Research Institute, Stanford University, not only avoids this mistake but also has considerable adjustments made for inaccuracies in official statistics (the compilation in *Agricultural Statistics* accepts official figures as published, even if subsequently the incorrectness was recognized officially). There is no apparent reason to compile and publish a poorer series, when a better one is available. There are only a few agencies in the world interested in world wheat data and not using the computations of the Food Research Institute.

Conversion factors:—On pages 6–8 of *Agricultural Statistics* may be found a very useful compilation of weights, measures, and conversion factors. The factors are worked out for the conditions in the United States. One is, however, somewhat surprised to find that the same conversion factors are used for all other countries of the world. Owing to different causes, such as climate or production techniques but also standards of living, conditions vary from country to country, and this is true also of conversion factors.

⁶ It produced 178 million bushels in 1909–13, according to the 1931 Yearbook of Agriculture, pp. 608–611.

Eggs, for example, differ considerably in size between countries; the eggs exported by the Netherlands average at least 50 per cent more weight per egg than the eggs exported by China. It is wise under such conditions that the Yearbook Statistical Committee discontinued publication of the data on international trade in eggs, which was in terms of dozens; but it would have done well to warn against too much reliance on the tables published in the previous issues.

The conversion factor for wheat flour into wheat is given at 4.7 bushels per barrel with the following note: "This figure (4.7) has been used for conversions relating to the period 1921-39. Because of changes in milling processes, the following factors have been used for earlier periods, 1790-1879, 5 bushels; 1880-1908, 4.75; 1909-17, 4.7; 1918 and 1919, 4.5; 1920, 4.6 bushels." First, such a low yield of flour as a barrel per 4.7 bushels is found only in very few, if any other countries of the world. Part of what in the United States goes into feed is used for human food abroad. There are countries—for example, central and southern Italy and all other European areas with Mediterranean climate—in which no more than 4.3 bushels of wheat are probably used per barrel of flour. Secondly, there is no reason to assume that anything like the changes in the conversion factor of wheat flour to wheat, enumerated above, occurred in other countries.

While, in the case of wheat flour, the difference between the conversion factors in the United States and foreign countries is relatively small, it attains very large proportions in the case of rye flour. The conversion factor used by the Department is one barrel to 6 bushels of rye. What foreign trade in rye flour existed and exists, was and is mainly in whole-rye meal, in the production of which less than 4 bushels of rye are used per barrel.

Disappearance of wheat:—In table 13 on supply and disappearance of wheat, the wheat used for food and commercial feeds is determined as a balancing item and thus reflects all the mistakes in all other items. The statistics of flour production are one of the best in this country and well permit direct estimates of flour production.

World wheat stocks:—Table 7, on estimated supplies and disappearance of wheat, contains an item, "Stocks about July 1 in the world excluding U.S.S.R. and China." Statistics of wheat stocks are available for only a few countries. Either all other countries

have been disregarded by the compilers, or the stocks in them estimated from very uncertain information. In such cases, the method of arriving at the estimates must be clearly stated.

Conclusion

The idea of a thorough reconsideration of *Agricultural Statistics* was accepted favorably by many prominent agricultural economists, indeed by all of those who cared to comment. The paper was also submitted to the Statistical Yearbook Committee, in charge of *Agricultural Statistics*, in November 1941, i.e. with plenty of time to consider the suggestions for the 1942 issue. Both the occasion of the 50 year jubilee of this widely-used publication and the recognized desirability of a thorough consideration of its whole contents, makes it advisable to put the 1943, the jubilee, issue in the hands of a special broader body, perhaps with participation of persons outside the U. S. Department of Agriculture. There is sufficient time for all necessary preparations. Yet to do a full job and especially to enable all interested to react, the work would have to begin without much delay.

THE SCALE OF OPERATIONS IN AGRICULTURE¹

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"Blessed be agriculture! If one does not have too much of it."

WHAT principles underlie the solution of the problem of optimum scale of operations in agriculture? General works and nearly all research studies in agricultural economics either fail entirely to explain the problem in economic terms, or attribute it to internal technological diseconomies, or to the operation of diminishing returns to the entrepreneurial function. A reconsideration of this subject is needed. The purpose of this paper is not only to prove groundless the idea that internal technological diseconomies are an important factor in explaining the small scale of farm units. On the positive side it elaborates what is involved in diminishing returns to the managerial function, and sets forth the greater risk consequent on increase in scale as an important barrier to the general realization of large scale operations in agriculture. These ideas have never been worked into a satisfactory analysis of the problem of farm scale. This task can now be undertaken, a fact which is largely dependent on the development of economic tools in the past ten years. Incidentally the present work approaches the problem of scale in a manner different than that used in a paper of nearly the same title, *The Scale of Agricultural Production in the United States*.² Further, it is not intended to add to what the writers of the above paper describe as the "thousands of pages of largely futile controversy" devoted to the question of the proper size of farm.³

First we shall treat with the difficulties involved in the internal technological diseconomies explanation of the reduced efficiency which accompanies increase in scale in farming. One form which this argument takes is to claim that the upper limitation on large scale operations is determined by the largest unit of machinery

¹ This work was undertaken in connection with a graduate course in the University of Kentucky. The paper has benefited by criticism and suggestion from R. H. Allen, Max M. Tharp, R. M. Williams, and I. S. McArthur; and from three of the junior author's present graduate students, J. H. Blackstone, S. G. Witten and H. M. Young.

² J. D. Black, R. H. Allen, and O. A. Negaard, *Quarterly Journal of Economics*, LIV: 329, 1939.

³ *Ibid.*, p. 355.

which is suited to a particular farming area. This is illustrated in the following quotations:

This leads to a discussion of the unit of organization on the farm. On the great wheat fields in California, the unit may be based upon the combined harvester and thresher. This machine, the crew to operate it, and the land, men, and other equipment required to raise that amount of wheat which can be cut during the normal harvest period, may here make up the unit or organization.⁴

Beyond a certain point in increasing size, it becomes necessary to duplicate important pieces of machinery and certain buildings.⁵

The position taken in the above quotation can not be successfully defended. It may be true that important diseconomies enter in the case of combines larger than twenty feet or of plow units larger than eight bottoms, but no one has demonstrated that it would not be economical to have two or more such units on a single farm.

Theory of the Problem of Scale

In considering the problem of optimum scale of operation of the firm, the researcher is faced first by Professor Knight's dictum that: "The relation between efficiency and size of firms is one of the most serious problems of theory, being, in contrast with the relation for a plant, largely a matter of personality and historical accident rather than of intelligible general principles."⁶ If we define the plant and the firm in agriculture as one, then the problem of scale becomes soluble in terms of what Knight calls intelligible general principles. Rigorously, this is not valid since agriculture uses some partial-products and makes almost entirely partial, not final products.⁷ Nevertheless, the importance of single unit production is sufficient to make valid for working purposes the identification of the plant and firm in agriculture.

Kaldor's important work on the firm provides a very satisfactory introduction to the problem of scale.⁸ His breakdown of the entrepreneurial function is particularly helpful in accounting for the

⁴ H. C. Taylor, *Outline of Agricultural Economics*, 1937, p. 175. This quotation from Taylor is made because it illustrates very nicely the point which the writers wish to make. They hasten to state that Taylor proceeds to deny the validity of the technological explanation as a determinant of scale.

⁵ V. B. Hart, C. M. Bond, and L. C. Cunningham, *Farm Management and Marketing*, p. 88.

⁶ From the preface to the London School of Economics re-issue of *Risk, uncertainty and profit*, 1933.

⁷ This point was made by Professor Knight in private correspondence.

⁸ The equilibrium of the firm, *Economic Journal*, XLIV: 60, 1934.

wide dispersion in optimum sizes of firms. His first division is uncertainty bearing, and the second management proper, composed, in turn, of supervision and coordination or decision making. Kaldor demonstrates that the operation of diminishing returns with respect to the coordinating factor is a satisfactory basis for determining the optimum scale for the firm. This explanation requires that entrepreneurship must be fixed in character, both in the short and long run periods. It further requires that the "fixity of supply must arise, not from a natural limitation of the amount available, but from a special peculiarity of the firm's production function; that is to say, there must be a factor, of which the firm cannot have two units—just because only one unit will do the job."⁹

In terms of a thoroughgoing abstraction Kaldor's approach is useful. One gets into difficulty, however, when one inquires about the unit of measurement for entrepreneurship—as one has a right to do. Clearly there can be no such unit, since coordinating ability varies tremendously with individuals, and of it there can be but one unit in a single firm. For our purpose, the greatest value of Kaldor's analysis lies in the fact that we may surely expect the production functions for various firms in an industry to be different because of the range of entrepreneurial abilities found in the industry. This then is the first step toward explaining a wide range of optimum sizes of firms in any one industry. The second lies in the operation of increasing risk. Here it should be noted particularly that Kaldor distinctly separates the risk bearing and the decision making or coordinating functions of the entrepreneur. The operation of risk which, after an early stage, increases more than proportionately with increase in scale produces the same effect in limiting scale as does diminishing return to the coordinating function. A variety of optimum sizes of firms in an industry can be explained partially in terms of the operators owning different proportions of total investment, in the face of the occurrence of increasing risk.¹⁰

Using Kaldor's work as a starting point and carrying further the consideration of the uncertainty bearing function of entrepreneurship is fully consistent with Hicks' view that the solution to the problem of scale must be set largely in dynamic terms. Hicks says:

"The elements which limit the size of the firm in practice are very largely dynamic elements; it is therefore not surprising that

⁹ P. 67, *op. cit.*

¹⁰ See M. Kalecki, *Essays in the theory of economic fluctuations*, pp. 95-106.

static theory has had so much trouble over the matter."¹¹

The writers agree with Hicks. They assert that it is possible with the notions of the firm current in recent literature, and with Keynes' concept of marginal efficiency of capital to state the problem of scale of operations in agriculture in a more satisfactory way than has been hitherto done.

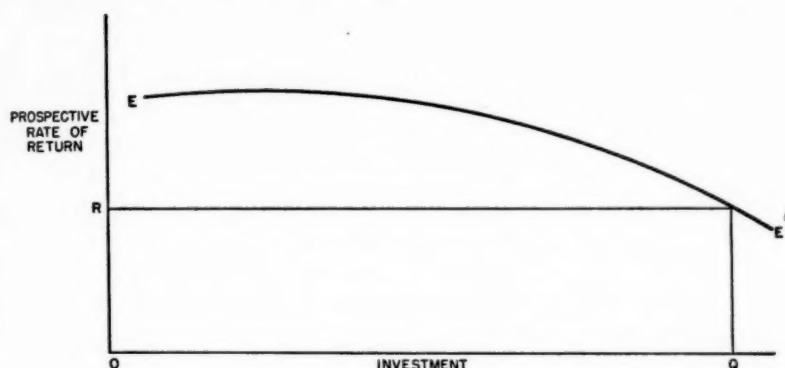


FIG. 1. DETERMINATION OF OPTIMUM INVESTMENT OR SCALE OF OPERATIONS.

Keynes' marginal efficiency of capital is the most satisfactory device yet developed for the representation of the amount an investor will put into a fixed investment or capital asset of any character. In investing in fixed capital the entrepreneur is really buying for himself a series of future incomes. The relation between the prospective yield of one more unit of capital invested in any line and its supply price or replacement cost, Keynes defines as the marginal efficiency of capital.¹² It is hardly necessary to state that this definition assumes that the optimum method of production be used for investment of any given size.

If the marginal efficiency of capital function for a given type of investment has a downward sloping character in any of its range then there is a real answer to the question of optimum scale. Empirical observation supports the adoption of such a view respecting

¹¹ Value and capital, p. 200. In the quoted statement the writers agree with Hicks. However, as to what constitutes economic dynamics they do not concur with him. Rather they agree with P. M. Sweezy in his view that any analysis which proceeds on the basis of given expectations is not dynamic but rather static in character. (Review of economic studies V: 204, 1936). To them the introduction of dating to a static scheme is not, as Hicks claims, sufficient ground for describing it as dynamic. See Hicks, Value and capital, p. 115.

¹² General theory of employment interest and money, p. 135.

agriculture. This concept is illustrated graphically in Figure I (following Kalecki). The curve EE' represents the marginal efficiency of investment and OR the prospective rate of return on investment. The optimum investment is then OQ . In an industry subject to indefinite increasing returns (if such there be) the curve of marginal efficiency of investment would always be upward sloping and consequently there would be no unique answer to the problem of optimum scale. If a producer could alter his scale without affecting the marginal efficiency of investment in this line, there would again be no unique solution to the problem of scale.

"Oft expectation fails, and most oft there where most it promises."

The foregoing would be worked out on the basis of expected prices, costs, and technological rates. But in the achievement of these, there is, as we all know (and particularly in agriculture), uncertainty. By uncertainty we mean those failures to realize expected prices, cost and technological production rates for which no appropriate risk premium can be paid.¹³ The existence of this uncertainty and its great importance in agriculture means that an appropriate allowance must be made for it. The means of allowing for it must, as we shall see, be one which considers the increase in uncertainty with increase in scale.¹⁴

The working of uncertainty as an increasing function of scale may take place in these ways: (1) the entrepreneur's wealth position (equity) is threatened in event of unfavorable expectations being realized. This is true to the extent that the entrepreneur has a financial stake in the enterprise. (2) With higher investment the liquidity position of the entrepreneur may be made less favorable, and he would be less able to meet contingencies requiring sudden

¹³ Schultz describes this in the statement that "the probability distribution of the expected mean value (of any price, cost, or technological rate) is not known." Capital rationing, uncertainty and farm tenancy reform, *Journal of Political Economy* XLVIII: 403:1940.

Tintner's treatment of the nature of uncertainty is very useful. He describes the case of subjective risk as one where there exists a probability distribution of anticipations which is itself known with certainty (and is thus insurable). Subjective uncertainty he defines as the case where there is an a priori probability of the probability distributions (of anticipations) themselves, i.e., a probability distribution of probability distributions. Of importance here is that there are only a priori grounds for evaluating uncertainty. See his *The pure theory of production under technological risk and uncertainty*, *Econometrica* IX: 3-4, p. 305, 1941.

¹⁴ The exception involved in the ability of large firms in some lines of business to reduce certain risks by combination is granted; but this phenomenon is not of relevance in the present analysis.

expenditure. (3) The rate of interest on borrowed capital is related to the liquidity position of the entrepreneur.¹⁵

The operation of these forces in agriculture can be seen readily. That greater uncertainty attaches to estimates of farm prices than of other groups is well illustrated by Mills in his *Behavior of Prices* (See Appendix Table VII). Mills' work shows the way in which an historical evaluation of price uncertainty would influence choice of or expansion in any particular enterprise. The mean deviation of link relatives of annual average prices for some of the farm products enumerated, for the period 1890 to 1924 are: milk 3.0; eggs 8.6; cattle, choice to prime 10.5; sheep, wethers 12.9; hogs, heavy 16.1; wheat 16.8; corn 17.6; oats 20.3; potatoes 54.4.

Further, in agriculture the difficulties in production planning which result from the very wide dispersion in technological rates (particularly crop yields) are manifest. Even in a state as favored climatically as Iowa the dispersion in yields is considerable. For instance, in the period 1920-1941 the coefficient of variability in the state average yields for Iowa for the following crops were: wheat 15.6 per cent; tame hay 17.1 per cent; corn 22.4 per cent; and oats 21.6 per cent. The above facts alone, according to the writers' hypotheses go a long way to explain the traditionally small scale of farm operating units in comparison with those generally found in other industries.

The agricultural industry has a characteristic which lends further weight to the proposition that in it risk increases with scale. What lies in the nature of farm costs? On farms of small and moderate scale the operator and his family contribute a large proportion of the labor, a fact not true for large scale farms. Thus on large farms direct cash cost, tend to be a higher proportion of total outlays in any given year than on small farms. The result is that the operator of the small or moderate size of farm is better able to adjust to unfavorable yield or price conditions than is the operator of a large farm.

¹⁵ With respect to these points Hart states: "If markets are very uncertain it will pay to avoid heavy commitments of capital (which must be left idle or operated at a loss when markets are unfavorable) even though they would promise to pay under a scheme of price anticipations with the same expectation values but less dispersion." He says further that the extent to which it will pay to sacrifice economy (in the event a market develops according to expectations) to security in the event that it does not will depend on the degree of dispersion of anticipations. See his *Anticipations, business planning, and the cycle*, Quarterly Journal of Economics, 51: 1937.

The subjective character (which, however, does not influence its strength) of risk should be stressed. The allowance is determined not only by the opinion of the entrepreneur respecting uncertainty but also by his willingness to bear risk. This is of greater importance in agriculture than in industries organized on a joint stock company basis, because of the ability of the latter to distribute risk among many individuals and among difficult types of share issues.

The effect of increasing risk on scale of operations can be shown in a variety of ways. Perhaps the easiest way is to relate it to

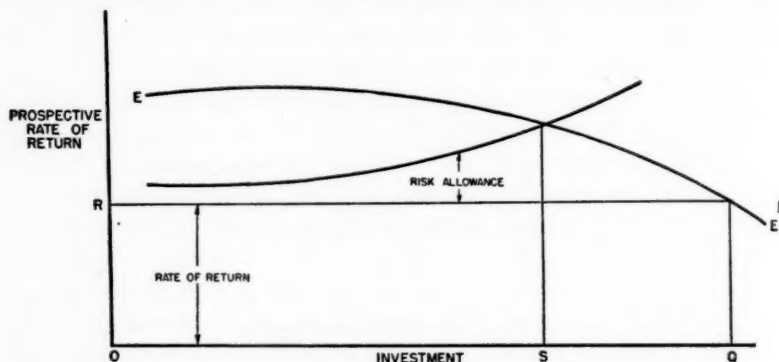


FIG. 2. DETERMINATION OF INVESTMENT OR OPTIMUM SCALE OF OPERATIONS, INCREASING RISK CONSIDERED.

Keynes' concept of the marginal efficiency of capital shown in Figure 1. With increasing risk, future returns will be discounted not only by the prospective rate of return on investment which is independent of the amount invested, but by a risk factor which is an increasing function of amount invested. This is shown in Figure 2. The influence of the use of a discounting factor for increasing risk is to reduce the optimum investment from OQ to OS .

The procedure of allowing for or discounting by a risk factor as well as by the prospective rate of returns on capital is suggested by both Lindahl and Kalecki. Lindahl states:

These expectations (relating to more or less remote incomes and costs), reduced through risk valuations of the entrepreneur, are discounted down to the present in the form of a capital value.¹⁶

The writers have purposely omitted consideration of the time span of the production plan. In the present work this is handled

¹⁶ Studies in the theory of money and capital, p. 349.

by the assumption that any investment is used in such a way as to secure the optimum production plan both in its organizational features and in its time span. Further, they have nothing to add to T. W. Schultz' treatment of the time span of the production plan.¹⁷ However, they cannot forego quoting a statement from Hicks which brings out clearly the fact that increasing risk is a function of the time span of the production plan. It is the influence of increasing risk which, according to Hicks operates to ultimately bring any production plan to an end (in the time sense). Hicks states:

Interest is too weak for it to have much influence on the near future; risk is too strong for it to enable interest to have much influence on the far future.¹⁸

Evidence—Hypothetical and Empirical

In the above analysis the problem of scale has been attacked from the long-run point of view. The authors have asked: How large a farm would a single entrepreneur secure if he had (a) choice of amount to be invested, (b) given prices, costs, and technological rates, (c) a certain evaluation of the uncertainties involved in realizing these production expectations, and (d) a given inclination to bear uninsurable risk or uncertainty? Their analytical formulation provides a framework for a solution to the problem.

The following empirical studies are included as a basis for establishing the fact that in agriculture risk may increase more rapidly than scale. For this purpose there are reproduced in Table 1 the results of budgetary studies on three Kentucky Pennyroyal Plains Tobacco-Livestock farms. Farm A is an actual unit. Farm B is a hypothetical unit of the same type, in the same area, but three times as large in acreage. Farm C, is again hypothetical, is of the same type, in the same area, but nine times as large as A in acreage. The organization of farm A is one recommended for medium size (215 acres of tillable land) tobacco-beef type farms on level to undulating land in this area. Unit price and cost data are based on 1936-40 averages for farms of this type in the area. Organization and quantitative production data were worked out by subject matter specialists. Plans for farms B and C were drawn up on the basis of price, cost and production data which conformed

¹⁷ Theory of the firm in farm management research, *JOUR. FARM ECON.* XXI: 570-586, 1939.

¹⁸ *Op. cit.*, pp. 225-226.

to those of Farm A. The second set of results shown in Table I are for the same farms but under conditions where a forty per cent reduction in prices of farm products and in yields are assumed to have occurred.

The data of Table 1 show that the cash returns to labor and management increase faster than size of farm increases, using 1936-40 prices and costs, and expected yields. Under these conditions cash outlays increase about proportionately with scale. Then with unfavorable price and yield conditions the losses to the operator increase sharply with scale. After making allowance for return on capital, and for depreciation, the operator of the small farm secures

TABLE 1. RELATION BETWEEN COSTS, RETURNS, AND SCALE OF OPERATIONS, PENNYROYAL PLAINS AREA OF KENTUCKY

Size of Farm Tillable Acres	1936-40 Costs and Prices and Expected Yields			Prices 40 percent below 1936-40 yields* 40 percent below expected		
	Cash Return to Labor and Manage- ment	Variable cash costs	Depre- ciation and Interest	Cash Returns to Labor and Manage- ment	Variable cash costs	Depre- ciation and Interest
Farm A— 215	3093	2270	1424	-64	1069	1332
Farm B— 645	9475	6710†	4079	-353	3559†	3928
Farm C—1935	33068	21330†	9822	-2663	12944†	9342

* Farm prices for all farm products reduced 40 per cent from 1936-40. This reduction was reflected in costs to the extent that costs go for the purchase of farm products e.g. feeder cattle. Variable cash cost adjusted to give consideration to the adjustments actually made between the periods 1927-29 and 1931-33 in areas comparable to this.

† Appropriate economies to scale considered.

a small negative return for his labor and management; the operator of the medium size of farm has a negative return of \$353; and on the large farm the operator's negative labor and management return is \$2663. Under these circumstances cash costs increased more than proportionately to increase in scale. The depreciation and interest data provided indicate that capital investment increases more slowly than scale. The influence of reduction in prices and yields on these costs is shown by the example to be very small.

For our purposes the most significant import of these data rests in the demonstration that large farms and favorable conditions go together. On the other hand they also bring out the fact that the

operator of the small to medium size of farm can hold out better against sustained unfavorable conditions.

Actual data on Webster County, Iowa, farms for 1928, 1929 and 1930 provide evidence which is in agreement with that of the budgets shown above. The Iowa data presented in Table 2 show particularly clearly the influence of a sharp drop in prices. Mighell attributes his findings partially to the relative inflexibility which characterizes the large scale farm. To the extent that farms become more specialized (and less flexible) as they increase in size, so the resultant risks become greater, more than proportionately with changes in size.

TABLE 2. MANAGEMENT RETURN ON FARMS IN THE CASH GRAIN AREA
(WEBSTER COUNTY, IOWA)*

Year	80-acre Farms	160-acre Farms	240-acre Farms	320-acre Farms
1928	\$-171	\$ 558	\$1021	\$1848
1929	130	825	854	1471
1930	-1182	-1537	-1828	-2394

* Derived from *Why Prosperity Favors the Large Farms and Depression Favors the Small Farm* by Albert Mighell, Iowa State College, Mimeo. 1933.

Economic Consequences

The foregoing analyses suggest that social and economic consequences of great importance will follow the successful shifting of risk by means of crop insurance, commodity loans which operate as price guarantees, and by such schemes as forward pricing. Clearly the influence of any of these would be to reduce the dispersion of the distribution of expectations for some of the items for which estimates must be made in planning the scale of investment. For instance, under the wheat insurance program of the Department of Agriculture a grower may obtain a contract insuring either 50 or 75 per cent of the determined average yield of such crops on his farm against loss due to unavoidable causes, including drought, flood, hail, wind, winter-kill, lightning, tornado, insect infestation, plant diseases, and other natural unavoidable hazards. An insured grower is not protected against loss in yield resulting from neglect or poor farming. This method of transferring yield risks may be extended to other crops such as corn, cotton, and citrus fruits. Before the program can be set up for a crop it is necessary to conduct research into yields and crop losses in the areas in which the

TABLE 3. RELATION OF ACREAGE TO INDEMNITY FOR WHEAT UNDER THE FEDERAL CROP INSURANCE PROGRAM 1939 AND 1940

	1939	1940
<i>Counties West of Mississippi River</i>		
Indemnity higher on small acreages	5	10
Indemnity lower on small acreages	—	1
No relationship	17	10
<i>Counties East of Mississippi River</i>		
Indemnity higher on small acreages	7	5
Indemnity lower on small acreages	—	1
No relationship	4	5

Source: Federal Crop Insurance Corporation.

insurance is to be offered. Do insurable risks under this program vary with size of farm?

The data of the crop Insurance Corporation for 1939 and 1940 relating indemnities to acreage for wheat are presented in Table 3. These are divided on the basis of the geographical criterion of whether the counties are east or west of the Mississippi river. These

TABLE 4. AVERAGE RELATIONSHIP BETWEEN SIZE OF WHEAT ACREAGE AND LOSS PER INSURED ACRE, 1940

Acreage of wheat	York, Nebraska			Blaine, Oklahoma			17 counties east of the Mississippi river		
	No. of farms	% of farms indemnified	Actual loss per acre, bus.	No. of farms	% of farms indemnified	Actual loss per acre, bus.	No. of farms	% of farms indemnified	Actual loss per acre, bus.
0- 4.9	10	80.0	7.71	—	—	—	304	11.2	.66
5.0- 9.9	111	84.7	8.25	16	93.7	15.88	1308	8.0	.36
10.0- 14.9	283	79.9	8.41	18	77.8	6.21	1011	8.8	.38
15.0- 19.9	297	81.1	7.88	25	84.0	4.97	642	8.4	.36
20.0- 24.9	277	78.3	8.05	31	80.6	5.62	363	8.8	.28
25.0- 29.9	267	79.4	7.94	23	56.5	2.40	265	5.3	.19
30.0- 39.9	326	80.4	7.55	69	60.9	3.16	297	4.0	.21
40.0- 49.9	120	77.5	7.39	75	62.7	3.10	195	6.7	.24
50.0- 59.9	80	80.0	7.70	62	54.8	2.70	99	8.1	.25
60.0- 79.9	46	95.7	6.26	147	39.5	1.43	93	2.2	.25
80.0- 99.9	13	92.3	6.27	81	37.0	1.77	41	2.4	.06
100.0-149.9	6	83.3	6.26	78	32.0	1.06	23	0	0
150.0-199.9	1	100.0	10.28	29	4.8	1.60	3	0	0
200.0-299.9				20	20.0	.32	5	0	0
300.0-399.9				3	0	0			
400.0-499.9				2	50.0	.13			

Source: Federal Crop Insurance Corporation.

data were secured on a sampling basis. In cases, other than those in which no relationship prevails, there is a tendency for indemnities to be higher on small acreages. This fails then to indicate that yield risks are generally associated with increase in size of farm.

The way in which the actual losses per acre varied with increase in size of farm in three areas is shown in Table 4. These data reveal well the nature of the yield risk problem and the consequent problems faced in insuring wheat yields. Preliminary studies in connection with the tobacco crop insurance program indicate a tendency for higher yields and lower crop losses to be associated with large acreages of this crop (which generally means with large scale of operations).

Canadian Yield and Price Insurance

An approach which is adapted to shifting a portion of both price and yield risks is represented in the Canadian legislation known as the Prairie Farm Assistance Act passed in 1939. This act has two sections. The first section, known as the National Emergency section, is designed to cope with low prices (any year in which the average price per bushel is less than eighty cents). Such a year may be declared by the Governor General in Council to be an emergency year. The second section, known as the Crop Failure Assistance section, is contrived to deal with a condition resulting from any cause other than hail (an already insurable cause). A crop failure area may be declared in any province when the average yield over a specified area is less than 5 bushels per acre irrespective of the price of wheat. Under the National Emergency section of the Act, all townships which have average yields of twelve bushels or less are classified into three divisions according to those average yields. The first group is composed of those townships whose average yields are more than eight and not more than twelve bushels per acre. The bonus payable on eligible acreage in these townships is ten cents per acre for every cent not exceeding ten by which the average price is less than eighty cents. Eligible acreage for the bonus under both sections of the Act shall consist of one-half of the cultivated acreage of each operator not exceeding two hundred acres. The second group consists of those townships in which the average yield is more than four and not more than eight bushels to the acre, and the award is fixed at \$1.50 per acre. The third group includes townships within which the average yield is

not more than four bushels to the acre, and here the award is fixed at \$2.00 per acre.

The Crop Failure Assistance section of the Act provides also for the declaration of a provincial crop failure by the Governor General in Council. Such an area may be declared in any of the three provinces when the average yield is five bushels to the acre or less in a minimum of 171 townships in Saskatchewan, fifty-four townships in Manitoba and ninety in Alberta. The operators within qualified townships are to receive either \$2.50 per acre for eligible acreage or a flat sum of \$200, whichever is greater. No farmer is eligible for assistance under both sections of the Act during the same year.

Under the provisions of this legislation a levy of one per cent of the value of all grain marketed is deducted. On the 1939 crop this amounted to \$2,421,507 and on the 1940 crop to \$2,582,688. The payments to farmers in the 1939 crop year were \$7,057,036 under the National Emergency provisions, and \$2,847,264 under the Crop Failure Assistance provision. In the 1940 crop year the payments under the National Emergency provisions were \$6,712,201; the Crop Failure provisions were not operative.¹⁹

The Federal Farm Program

The ever normal granary and the accompanying crop loans in this country represent attempts to reduce price risks to the farmer and enable him to plan production of those crops affected with considerable certainty as far as minimum prices are concerned. This increased certainty encourages larger scale of operations. On the other hand the limitation of benefit payments under the AAA operate in the opposite direction. (Pending legislation places a limit of \$1000 on the soil conservation payment on any farm.)

Forward pricing, which has been discussed considerably in the past year, goes a step further than any of the schemes mentioned above in removing from the operator the influence of uncertainty. It would not, however, transfer price uncertainty entirely from the farmer, since such prices would likely be established for one year, or at most two years in advance of production of a product.

An interesting phase of parity payments and parity loans is that

¹⁹ Data from mimeographed reports of the Canadian Department of Agriculture entitled Report on activities under the Prairie Farm Assistance Act for the crop year 1939-40, and a similar report for the crop year 1940-41.

these represent an attack not only on uncertainty in farm prices but also on farm costs. The fact that the only variable (other than Congress) which can shift parity is the cost of products purchased by farmers indicates that parity allows for changes in farm costs. It is not suggested, however, that parity represents a direct attack on uncertainty in farm costs.

The essential point is that these governmental measures, aimed at transferring risk to federal agencies, or at providing insurance for previously uninsurable risks, may be generally considered to have the effect of making profitable larger scale of operations in agriculture. They exercise an influence on increasing scale in much the same way as those changes in technology which, in the absence of increasing risk, clearly favor large farm units. The distinct trend toward shifting risk which has occurred in recent years calls for an evaluation of its effects in the light of the goals for agriculture toward the pursuit of which national farm programs are leading. Among these is the "family size" farm. Economic and historical study justify attaching great significance to a generally overlooked feature of the "family size" farm. A truly distinctive character of this organization or institution is its proficiency at "belt tightening" in the face of unfavorable circumstances.

THE DISPOSAL OF AGRICULTURAL SURPLUSES*

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THERE can be no doubt that a continuing agricultural crisis against which national governments strove desperately to protect their farming communities was one of the root causes of international disequilibrium in the period between the wars. The accumulating disequilibrium is clearly demonstrated by the fact that stocks of agricultural commodities rose from an index number of 100 in 1923-25 to 264 in 1932, while in the same period the index of agricultural prices fell from 100 to 24.¹ This mounting index of agricultural surpluses and declining index of agricultural prices, even in the years of apparent prosperity from 1925 to 1929, is eloquent evidence of underlying structural disequilibria in the world's agricultural production and consumption. They indicate also that the measures of agricultural protection and relief undertaken by almost every government, so far from solving, accentuated the underlying disequilibrium.²

Once again war has intervened to cut off what interchange between the agricultural countries of the New World and the industrial countries of continental Europe had survived the years of economic nationalism. The League economists, reporting on world developments, are again drawing attention to the mounting stocks of many agricultural commodities. It may well be true that, after two years of war, the food situation in Germany is much better than it was in 1916.³ It seems to have been good enough last winter "to allow of a consumption of calories not materially different from that of a working class family before the war," though the diet is "much reduced in proteins, vitamins and other protective foods."⁴ Energy-producing foods were short during the winter of 1940-41

* This paper was presented at the annual meeting of the American Farm Economic Association, New York City, December 28, 1941.

¹ Cf. V. Timoshenko, *World agriculture and the depression*, Ann Arbor, 1933, Appendix, Table 10. The commodities chosen and weights used in compiling the indices are Cotton (9), Wheat (6), Sugar (6), Rubber (3), Silk (2), Coffee (2) and Tea (1).

² Cf. League of Nations: Economic Committee, *Considerations on the present evolution of agricultural protectionism* (C. 178. M. 97. 1935. II. B), Geneva, 1935, pp. 6-7.

³ Karl Brandt, *Food as a political instrument in Europe and How Europe is fighting famine*, Foreign Affairs, April and July 1941.

⁴ League of Nations, *World economic survey 1939-41*, Geneva, 1941.

in Poland, Belgium, parts of France and Norway, and in Finland and "these same countries, and especially Poland, would appear to have suffered most from insufficiency of vitamins and mineral salts." What future winters hold in store for these peoples cannot be accurately forecast; but it would seem probable that, despite German organizing energy, the increasing difficulties of transport and the over-running of great food-producing areas such as the Ukraine, must bring once more a great diminution of food supplies.

Meantime surplus stocks cause increasing concern in overseas countries. The four major wheat-exporting countries alone had 1,116 million bushels in hand at the end of July, 1941. The approximate surplus expected by July, 1942, has been estimated at a billion and a half bushels.⁵ The surplus of cotton stocks in July, 1941, was estimated at 20,454,000 bales of which 12,692,000 were in the United States. Other great surpluses exist and are increasing in vegetable oil materials (copra, ground nuts, linseed, etc.); cocoa, tea, coffee, sugar, maize, silk and tobacco, while perishable foods such as frozen meats and butter are taxing warehouse facilities in countries like New Zealand and the Argentine, because of the losses of refrigerated shipping tonnage. Even wool, so much in demand for military uniforms, is accumulating in Australia. This story of shortages on one side and burdensome surplus stocks on the other, is familiar from the experience of the last war. A new element has entered into the situation, however, in the firmer control now exercised by national governments over the rationing of consumption on the one hand and the effective control of surpluses by Government intervention on the other.⁶ A recent Australian official statement goes so far as to claim that "we have carried the problem of stabilizing primary production a stage further than any plans hitherto adopted in Australia. It is a co-ordinated effort to place

⁵ Leslie A. Wheeler, *Agricultural surpluses in the post-war world*, Foreign Affairs, October 1941.

⁶ Cf., the long list of Government controls recorded in successive issues of *Foreign Agriculture*, especially

Wartime agricultural policy of Canada, Vol. III, No. 12, December 1939, p. 503.

The Australian wheat industry assistance scheme, Vol. III, No. 11, November 1939, p. 509.

Agricultural price control in foreign countries, Vol. III, No. 2, February 1939, p. 45.

Canada's wartime agricultural measures, Vol. IV, No. 6, June 1940, p. 333.

Rationing in the United Kingdom, Vol. V, No. 1, January 1941, p. 13.

Wartime policies and controls affecting agricultural trade, Vol. V, No. 5, May 1941, p. 175.

in reserve surplus export products whether in the form of stocks or processed goods and it will have a profound effect on plans for stabilizing primary production in the difficulties which we will face after the war. Here is another instalment of the Government's efforts to lay now the foundations of a more solid economic structure after the war. "We are not waiting on the development of plans for a new world—we are building that world here and now."

Moreover national action has already led to international discussions and in certain fields to international action. Commodity control agreements were in force before the war in respect of certain products such as tin, rubber, wheat and sugar. Summarizing a rapid survey of the problem of agricultural surpluses at the present time, an official of the United States Department of Agriculture draws four conclusions: that a marked disequilibrium existed before the war, that national efforts to remedy this disequilibrium had proved ineffective, that numerous efforts had been made "with varying degrees of success" to achieve regulation by international agreement, and that "the war has greatly aggravated the situation affecting these chronic surpluses. Huge stocks, out of all proportion to the amounts that move normally in international trade, will be piled up in the exporting countries when the war ends. To throw these stocks on the market would be disastrous."⁷

It may be remarked in passing that the new agricultural program launched by the United States Government in connection with lease-lend aid to Britain seems destined to extend the range of commodities in which surpluses may be produced. The prime need of Britain is for fats and protective foods. The farmers of the United States are, therefore, being urged to run the risks of over-production after the war in order to provide exports of such products as butter, animal fat, and eggs. At the same time it is made clear that any such over-production can well be absorbed by measures to raise living standards and improve nutrition.⁸ On the other hand the extension of an imperial system of exchange control makes at least possible the replacement of American by Australian canned and dried fruits. It seems likely, therefore, that not only the staples—wheat, cotton, sugar, coffee—but a very wide range of agricultural foods and raw materials may need to be brought within the ambit of international control schemes.

⁷ Leslie A. Wheeler, *op. cit.*, p. 95.

⁸ Statement of Secretary of Agriculture Wickard quoted in *New York Times*, November 14, 1941, p. 3.

Such schemes are already in preparation, and in them for the first time, consideration appears to be contemplated for the consuming as well as the producing countries. The Inter-American Coffee Agreement, for example, provides "*not only for export quotas, but also arranges that the largest consumer, the United States, shall make enforcement effective by the strict regulation of imports according to quotas.*"⁹ A distinction should be drawn, however, between consuming countries and the ultimate consumers in those countries. Unless care is taken to safeguard the interests of the consumer, international commodity agreements may well be made at his expense. There is likely, however, to be a more revolutionary development than those noted above. The beginnings of discriminating prices, somewhat analogous to the Food stamp plan in the United States, are already in evidence. In July, 1941, an international wheat meeting "*drafted the first major international commodity agreement written in anticipation of postwar needs,*" and, in doing so, expressed the hope that "*by the establishment of an ever-normal granary and a large pool of relief wheat, the consumers of the world may be guaranteed abundant postwar supplies at prices reasonable both to them and to producers and free of charge to those in need of relief.*"¹⁰

This is a far cry indeed from the situation after the last war when the French plans for continuation of commodity controls largely as a means of economic constraint directed against a beaten enemy were vetoed in advance by the United States not only in order to obtain justice in distribution, but also so that United States exporters could get adequate prices.

There are difficult problems to be faced in the negotiation of international commodity agreements, leading perhaps to the creation of great international control institutes. It is by no means certain that they can be organized in such a way as to solve rather than aggravate the problem of surpluses. Incorporation of consumer interests in the machinery of control is, however, a great step in advance. It may perhaps be hoped that such machinery can be created to function effectively in the immediate post war period.

This, however, would dispose only of the immediate problem. After the last war the shortage of foodstuffs and raw materials in Europe was sufficient to absorb the accumulated surpluses over-

⁹ Wheeler, op. cit., p. 94.

¹⁰ Ibid., p. 89.

seas. The process of absorption by competitive marketing led first to soaring scarcity prices and then to a precipitate decline. Continuance of control over an adequate transition period may possibly avert the necessity for traversing again this destructive and wasteful experience of boom and slump. It cannot avert the necessity for equating supply to demand. But there remains a more delicate and difficult problem—perhaps the most crucial problem of international adjustment after the war; a problem that was never faced after the last war and ultimately proved to be the most obstinate cause of continuing disequilibrium.

This problem has been hinted at in the statement that: "*There also is good reason for us to prepare now to make certain reasonable demands upon the Central European nations before they begin their task of postwar agricultural reconstruction. The problem of how to handle the world's wheat and sugar surpluses would be appreciably diminished if the costly and inefficient production of them could be limited or abolished. The people of the nations concerned would benefit from lower costs, and their fields could be used advantageously to remedy the deficiencies which exist in dairy products and other protective foods.*"

"No one would seriously suggest that these war-scarred and weakened nations should be compelled to give up prewar cultivation patterns and then left merely with an admonition to produce something else. They are going to need help. But when we make our plans to give them financial and technical aid after the war, we should place emphasis on increasing their production of protective foods and discourage un-economic efforts to establish trade isolationism."¹¹

It is very desirable that this problem should be frankly faced in its political, as well as its economic, implications, and elsewhere as well as in Central Europe. Essentially it consists of the use of political pressures to protect economic activity that is unable to cope effectively with external competition. Even more dangerously it consists of the political power that accrues to interest groups as they mobilize for their own protection. The most extreme examples of such groups are naturally to be found in the older countries where feudal landowners have managed to preserve many of their medieval privileges. But the danger is widespread. Hesitance to accept economic adaptation as world conditions have changed has

¹¹ Leslie A. Wheeler, op. cit., pp. 100-101.

been stubborn on the part of peasant agriculturists in most European countries. It is equally stubborn among the farming communities of the United States. In the confusion and disintegration that followed the breakdown of exchange equilibrium in 1931 extraordinary measures of protection were devised in the form of quotas and exchange control systems as well as tariffs. Behind these emergency barriers agricultural production has greatly increased even though at high cost. To restore the interdependent trading of the pre-depression world involves the reduction not only of economic protection but also of powerful political lobbies. It is improbable that merely negative action will suffice to achieve these objectives. Positive action to change the methods of agricultural production and direct them towards new objectives is also needed. Negative action, however, to destroy the bastions of privilege is necessary. That necessity may be illustrated summarily and bluntly with reference to the history of agricultural protectionism in Germany.¹² It goes back at least to 1879. The German Reich, established under the leadership of Prussia, had inherited the low-tariff policy of the liberal Zollverein. It was Bismarck's aim not only to initiate a high protective policy to stimulate industrial development, but also to shift his political support from a parliamentary majority based on the liberal center to one based on the conservative right. Germany had been a grain-exporting country; and the agricultural interests, including the great landowners east of the Elbe, had been vehement supporters of the low-tariff policy.

The opening-up of new grain-exporting areas particularly in the middle west of the United States changed this situation almost overnight. In a very few years after the severe crisis of 1873 German grain-growers not only lost their export markets, but became a "high-cost area" threatened by the constantly cheapening American wheat even in their own home markets. Continental Europe and Germany in particular never accepted the economic consequences of this great agricultural revolution. Britain did and sacrificed the growing of grain in order to take advantage of the cheap food for its urban masses of industrial workers. Belgium, Holland and, for some decades, Switzerland, followed the same course and

¹² For the summary which follows I am indebted to an unpublished MS. by Dr. Alexander Gerschenkron entitled *Agricultural Protectionism and Democracy in Economy*. For convenient brief historical accounts in English of the German policies of agricultural protectionism, cf. also League of Nations: Economic Committee, *op. cit.* and Wilhelm Ropke, *German commercial policy*, London, 1934, Ch. VI-VII.

reaped the same advantage in lowered costs of industrial and agricultural manufactures. Their agriculture after an initial period of adjustment settled down to the production of perishable foods for the growing towns. The advent of refrigeration in the nineties increased the range of overseas agricultural competition and intensified the resistance of most continental countries to the creation of a specialized, interdependent world agriculture.

By embarking in 1879 upon a high protective policy, based upon the famous compact of iron and rye, Bismark did much more than resist economic change. He anchored the effective balance of political power upon the feudal landowners in opposition to the growing strength of the urban proletariat. Democratic government, which inevitably rests largely upon the development of a responsible trading middle-class and an organized labor movement, was thwarted, as it was meant to be thwarted, by this shift of political power. Agrarian mysticism, the mysticism of blood and soil and race, the exaltation of rural virtues in contrast with the "godless" Social-Democratic movement and the "Jewish" capitalist-traders, antedates, and has merely been adopted by the Nazis. There was widespread propaganda for agricultural self-sufficiency, particularly as a measure of war preparedness, as early as the eighteen nineties. It was nurtured by the protection of agriculture in inefficient high-cost areas whose leadership has always been provided by the most persistent remnant of medieval feudalism in Europe—the Junker landowning, aristocratic and military caste of East Prussia. Once entrenched, they have never yielded power, and have known how to withstand reformist plans such as the resettlement schemes of the post war Social Democrats. Even Hitler had to modify his program of land settlement. The militarists have known how to use adventurers like the Nazi leaders, as the latter have known how to enlist their support.

It is a tragic error to believe that the defeat of Hitlerism, essential as it is, will root out the militarist spirit from its German stronghold. No German Chancellor, of any party, has ever been able to touch the citadel of their power, the protection of grain-growing in large estates on unsuitable soils. Caprivi attempted it when he negotiated a series of bilateral trade treaties in the early nineties, but he was driven from power. German agricultural protectionism remained the chief obstacle to world trade and to peace up till the war of 1914-18.

Defeat in that war brought the necessity of great imports of food and raw materials. For a number of years Germany remained a free trade area in grains. Yet until 1920 the high prices on the world market and, in the following years, the undervaluation of the mark in the process of inflation provided sufficient protection for the German grain growers. After 1925 German agricultural protectionism began anew and proceeded swiftly to its logical conclusion of militarist autarky. It was primarily a protection to grain, and above all redounded to the benefit of the great landowners. The tariff on wheat which had been nil while Germany was under Allied control, had risen to RM 5.00 per quintal by January 1, 1929 and to RM 25.00 per quintal by January 1, 1934. Thereafter the National Socialist Government was in power and the regulation of wheat imports was pursued by other means, but the tariff remained. Meantime the price of wheat even in 1934 was approximately three times the price of wheat on the free market at Rotterdam.

There can be no durable solution to the problem of world agricultural surpluses if this situation is allowed to recur. And there is not likely to be any peace in Europe if the political power of the feudal, militarist, landowning Junkers is not smashed.¹³ They survived the defeat of the Kaiser, but they should not be allowed to survive the defeat of Hitler. An effective sapping of their power, which has plunged Europe into major wars twice in a generation, involves the destruction of their privileged economic position based upon the arbitrary and excessive protection of grain—wheat and rye. Some part of the lighter soils in East Germany ought really to go back to forest use. Other and better soils should be distributed in small holdings, primarily for dairying organized along cooperative lines. The case of the East-German Junkers is very clear, but it does not stand alone. With them should go the remaining feudal elements of Europe such as the great landowners in Poland and Hungary. Agrarian reform, redistribution of the land, such as occurred in several European countries after the last war, is an essential basis for democracy and peaceful cooperation.¹⁴ Moreover

¹³ It should be emphasized also that economic nationalism in Germany rested on the compact of "iron and rye." The responsibility of the great industrialists both for aggressive protectionism and for the financing of the Nazi movement should not be forgotten. Thyssen as well as Papen and Hindenburg opened Hitler's way to power.

¹⁴ Cf. statement of Count Carlo Sforza in *New York Times*, November 15, 1941, p. 14.

the peasant farming of many democratic European countries is highly protected also and the political power of the peasant parties rests on that protection. The extension of Soviet influence over much of central and eastern Europe may provide a drastic solution of this problem.

It is recognized that the suggestions contained in the preceding paragraph may seem to conflict with the third point of the Atlantic Charter;¹⁵ but it is obvious from many official statements that interference in national economic policy is now accepted as necessary to establish and maintain international economic equilibrium. It is an ostrich-like policy to pretend that economic interference does not have political implications. It is equally unrealistic to believe that nations can be allowed to choose their own forms of government with no respect for international standards of behavior and then be expected to follow the economic policies compatible with international equilibrium. If the statement means national autonomy within the limits of known and stated canons of political freedom and economic cooperation, it is clear that the particular form of administrative machinery can and ought to be left to local decision. But if world order is to be maintained it should be frankly recognized that economic, and behind them political, sanctions must be held in reserve if particular nations attempt to thwart the will to peace and cooperation of the world community. If this constitutes interference in national political organization, it should be recognized that there can be no guarantee of peaceful cooperation without such intervention. All modern wars are in some degree civil wars and, as events in Spain so amply demonstrated, no civil war can now be fought without international complications.

The further point should perhaps be added that any country which perpetuates an area of high-cost production because of the political influence of those engaged in it or the social importance attached to the preservation of the industry, runs grave risk of endangering democratic government. Political feeling runs high in such cases. There are, perhaps, few cases in democratic countries where a powerful group interest has developed a political creed at

¹⁵ "Third, they respect the right of all peoples to choose the form of government under which they will live; and they wish to see sovereign rights and self-government restored to those who have been forcibly deprived of them."

all comparable with the agrarian mysticism that supports the feudal leadership of the German Junkers. It should be noted, however, that in some industries the United States is now at the crossroads of tariff policy that Germany reached in 1879. Certain products, of which wool is one, have now entered the category of high-cost production and maintain their prices in this country out of equilibrium with those in other producing areas primarily by means of high tariff protection. A breach has been made in this protection by the reduction in the duties on crossbred wools contained in the recent reciprocal trade agreement with the Argentine; but the cost of maintaining the remaining duties, which are particularly high on fine wools, is heavy upon the American consumer and a stumbling block to trade with other countries. Resistance to any reduction of such duties, or to the removal of veterinary embargos such as that on imports of chilled and frozen meat is very strong. The sugar lobby is also powerful though beet-sugar is clearly a high-cost industry on the mainland of the United States. Reduction of such impediments to freer international trade would clearly involve property losses, for example, in land values, just as reduced support to the prices of other farm products, such as cotton, would involve financial losses though not necessarily to the actual growers. A democracy needs to be aware of the political dangers, as well as the economic costs, involved in protecting such areas of high-cost production.

It remains only to point out that a promising line of attack upon this problem of agricultural surpluses has been opened by the effort to diversify production and direct it to supplying local markets with the commodities needed to assure reasonable living standards. This effort which promises to ease the transitional costs of readjustment where high-cost production has been maintained, or even stimulated, by excessive protection is consistent with the trend of political thought and action towards the assertion of every citizen's right to a greater measure of social security. It is also consistent with "the newer knowledge of nutrition" which emphasizes the value of protective foods, most of which are perishable and best produced in areas adjacent to their main markets. It builds, therefore, upon the principle stated above, that international cooperation must for the future be based upon economic policies designed to maximize purchasing power.

Of the many actions in democratic countries which have already been taken in this direction it is perhaps sufficient, for illustration, to recall that the Agricultural Adjustment Administration in the United States, especially in its most recent phases, is primarily a plan to diversify production and make possible improved nutrition. The Tennessee Valley Authority also has been designed, in part, to promote more diversified agriculture (as well as industrial development) over a wide area at present devoted largely to the production of one staple crop—cotton—that has for many years suffered from chronic surpluses.

The experience gained in Britain during the enforced rationing of the present war is not likely to be lost. As Sir John Orr has shown, all but the poorest of the population of Britain before the war were able to secure enough proteins, though perhaps 10% had insufficient fat. The diet of a much larger percentage was insufficient in the vitamins as well as in calcium, iron and phosphorus. Faulty purchasing and inadequate dietary knowledge account for some part of this malnutrition; but the major cause is poverty. Thus improved nutrition is not merely a problem of education and public health, but "a part of the wider problem of raising the general standard of living."

Sir John Orr has calculated that "*raising the food consumption of the whole population to the level of the top 10 per cent, who buy nutritionally satisfactory diets, would involve an increase in the demand for milk of 80 per cent., for butter of 41 per cent., for eggs of 55 per cent., for meat of 29 per cent., for fruit 124 per cent. and for vegetables 87 per cent.*"¹⁶

Even in the United States, nutrition surveys have revealed the prevalence of inadequate diets among a much larger section of the population than is commonly supposed.¹⁷ For the most part, the problem in the United States, as in most of the British Dominions and the highly industrialized Western European countries, is not so much a lack of energy-producing foods, as insufficient use of the more expensive "protective foods." There is, in every country, however, a fairly substantial low-income group which has a struggle

¹⁶ John Boyd Orr, *Food, health and income*, London, 1936.

¹⁷ Cf. League of Nations, *Final report of the mixed committee of the League of Nations on the relation of nutrition to health, agriculture and economic policy* (A. 13. 1937. II. A), Geneva, 1937, pp. 297-306.

to get sufficient energy-producing foods. If this is so in the richer countries, it is more obviously true in the industrially undeveloped countries. The nutrition surveys undertaken in connection with the League of Nations campaign have revealed the essential poverty of large masses of the world's population.¹⁸

It is, after all, the merest commonsense, as well as sound economics, to build up the efficiency, productive capacity and purchasing power of populations at present sunk in the morass of poverty and population pressure on limited resources. To do this great schemes of industrialization are ultimately called for. That industrial development can work wonders has been demonstrated by the U.S.S.R. But there is no need to go through the agony of revolution to achieve industrialization. Freer trade and investment worked this miracle in the new world in the nineteenth century. The new world, however, drew energy and initiative from abundant food supplies. The first need of the backward industrial populations of the world at the present time is sufficient food. If this need were even approximately met, there would be no agricultural surpluses to dispose of.

"The achievement of a satisfactory level of nutrition" in the words of Mr. F. L. McDougall who was largely responsible for initiating the League of Nations campaign in this field, "makes two primary demands, namely, the capacity of agriculture to produce more food, in particular, more dairy products, eggs, fruit and vegetables, and the provision of some at least of these foods, whether energy or protective, at lower prices so that the less well-off sections of populations may find an adequate dietary within reach of their incomes."¹⁹

Campaigns for improved nutrition, better housing and improved living standards generally may have a better chance of

¹⁸ Cf. League of Nations, *op. cit.*; also League of Nations, European Conference on Rural Life, Geneva, 1939; and League of Nations Health Organization, Intergovernmental Conference of Far Eastern Countries on Rural Hygiene, Geneva, 1937. Of Asia the League of Nations Health Organization reported that "it is thought that of the 1,150,000,000 inhabitants of that continent not less than 75% have a diet below the standards fixed by European science. . . . It appears that a large part of the population is living on the borderline of the minimum requirements, while millions are even below that level." League of Nations, Health Organization, Intergovernmental Conference of Far Eastern Countries on Rural Hygiene, Report by the Preparatory Committee (document C. H. 1234. Ser. L. o. N. P. 1937. III. 3), Geneva, 1937.

¹⁹ F. L. McDougall, *Food and welfare*, Geneva, 1938.

success after this war in so far as readiness to experiment with such policies are concerned; though they cannot be regarded as dispensing with the necessity for a more direct attack upon the obstacles now barring the way to international economic cooperation.²⁰ There is no easy road back to peace and prosperity; but it is even truer today than when Mr. McDougall wrote in November, 1938, that "*the five aims of an improved level of nutrition, higher standards of living, a more prosperous agriculture, freer international trade and an increased volume of trade, together interlock to form lines of policy which should ensure economic and political stability to the nations prepared for such cooperation and if vigorously prosecuted should help to promote the peace so desirable but so difficult of achievement in the world today.*"²¹

²⁰ Cf. N. F. Hall, Preliminary investigation into measures of a national or international character for raising the standard of living, Geneva, 1938.

²¹ F. L. McDougall, *op. cit.*, p. 56.

OBSTACLES TO AGRICULTURAL PRODUCTION EXPANSION*

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I

AGRICULTURE is called upon to produce more with less labor during the war emergency. This can be accomplished only by two means: increasing the efficiency in the use of all productive factors now available on farms, and increasing certain capital inputs which are not seriously competitive with our military-industrial war effort.

Immediately the question arises: where in our agricultural plant can the greatest gains in efficiency of resource utilization be made, and where will the application of additional input factors yield the greatest physical returns in those products most urgently needed for the conduct of the war?

The primary agricultural war essentials are oil bearing crops, hogs, poultry and dairy products.¹ From the outset, let us start from this assumption: the dominant purpose of our agricultural war production program must be to maximize the physical output of these four categories of farm products, not for the current year only, but over a period of three or four years. For this period, we cannot produce too much of these products. At whatever "production goals" we might arrive for specific areas and years, they should be surpassed if possible, and should serve merely as rough estimates of what increases might be expected, and as approximate directives for differential expansion between the various individual products according to relative needs. Since the technical substitutability among the various end products is relatively wide, we need not be overly concerned about producing, for instance, too many eggs relative to dairy products, or hogs relative to oil crops. This holds particularly, since many of the input factors for these various prod-

¹ The list of products for which the U. S. Department of Agriculture has set production goals calling for increases over 1941 is considerably longer, and includes tomatoes, field peas, sugar beets, etc. These, however, are mostly special crops, produced under peculiar conditions of location and techniques and requiring special programs.

* Journal Paper No. J 2009 of the Iowa Agricultural Experiment Station, Ames, Iowa, Project 727.

ucts are not strictly competitive, at least not in the short run of a few years and within the range of practically feasible rates of expansion.²

Furthermore, the production periods for these products extend over at least one or more years, while tremendous peaks in demand might develop within a few weeks from unforeseeable contingencies of military strategy, such as the sending of a large expeditionary force abroad.³ Hence, it is of paramount necessity to accumulate ample stock piles of concentrated and non-perishable food of preserved pork, lard, condensed milk, cheese, dried eggs, etc. For this reason, the marketing and processing channels should under no circumstances be allowed to get clogged to a point where farmers are discouraged from straining their efforts to the utmost in producing these war essentials. Particularly for egg and dairy products, a much more vigorous policy of streamlining and, if necessary, expanding of marketing, processing and storage facilities is urgently needed, and specific price supporting and other emergency schemes should be used as stop-gaps wherever production outruns the capacity of the distributive channels.

II

Coming back to our central question, where are the greatest opportunities for increasing efficiency and injecting additional capital inputs into the production process, I should like to submit the thesis that it is on the smaller, under-improved and not highly commercialized farms that the possible rate of output expansion is relatively greater than on the larger, well improved and highly commercialized farms, and that policy measures specifically designed to overcome the production obstacles on these small-scale farms are needed in order to mobilize their productive resources.⁴

For the following discussion, the term "small-scale" shall refer to all farms where the volume of business, or the annual aggregate value of farm products, is smaller than could be expected under

² For instance, labor requirements for an expanded soybean acreage do not interfere with expansions in the dairy enterprise; in fact, it is complementary in the sense that it also increases the supply of protein feed—at least as long as it does not necessarily decrease alfalfa acreage.

³ See the provocative article by John B. Canning, *Foods for Defense*, in the November 1941 issue of this JOURNAL.

⁴ See James J. Maddox, *The Role of Low-Income Farm Families in the War Effort*, presented before the House Committee Investigating National Defense Migration, Washington, D. C., February 13, 1942; and P. G. Hammer and R. K. Buck, *Idle Manpower*, *Land Policy Review*, Vol. V, No. 4, April 1942.

conditions of reasonably full employment of the farm labor force in efficient combinations with adequate supplies of durable and non-durable capital inputs. That is, farms where there is a relative over-supply of labor, and where additional inputs of capital in various forms and corollary improvements in production techniques are needed in order to utilize the existing farm labor force at near-capacity, shall be designated, for want of a better term, as "small-scale" or "low-income" farms.

Unfortunately, empirical data concerning the capital deficiencies and other production handicaps on small-scale farms are very scant, and research to determine the potentialities of output expansion on these farms is urgently needed.⁵ In the meanwhile, we must do our best in reasoning deductively and drawing inferences from whatever meager factual information we possess.

The 1940 Census of Agriculture has classified all farms by "value of farm products sold, traded, or used by farm households" (in short: "farm product value") for the calendar year of 1939. According to this source, roughly two-thirds of all farms in the Corn Belt states had a product value of less than \$2000, which would probably correspond to a net cash income (after rent, interest and taxes) of less than \$750.⁶ It appears reasonable to assume that the vast majority of the farms in this group fall under our definition of "small-scale" or "low-income" farms, and that its criteria do not typically apply to the upper third of the farms, producing more than \$2000 worth, in this area; realizing fully, of course, that this division is arbitrary, and that many exceptions could be found on both sides of the line.

The importance of visualizing the order of magnitude of the proportion of low-income farms lies in the fact that hardly any attention is given to the capital deficiencies and other obstacles to output expansion peculiar to this group of farms in arriving at production goals and in planning agricultural production policies. It is being assumed that farmers are highly responsive to price stimuli, that there is no lack of production credit, farm improve-

⁵ In several states, agricultural experiment stations are undertaking research projects on low-income farm problems in cooperation with the Farm Security Administration.

⁶ See "Farm Income Situation," U.S.D.A., Bur. of Agr. Econ., Sept. 1941, according to which net cash income amounted to 34 per cent of the total farm product value for agriculture as a whole in 1940. The above figure represents a somewhat higher percentage, because the proportion of costs to gross income tends to be smaller on the lower-income farms.

ments and livestock facilities, and that an appropriate policy of offering price incentives and guarantees is all we need to entice farmers to an all-out effort of production increase. This might well hold true for farmers in the upper third of the income scale, most of whom are highly commercialized and have been operating at nearly full capacity and maximum efficiency all along. There is, however, much evidence accumulating which indicates the existence of serious obstacles to production increases on the small-scale farms, that is for the Corn Belt on about two-thirds of all farms, which can hardly be overcome by price incentives alone.

III

In order to find out more specifically what obstacles the small farmer encounters if he wants to respond to the patriotic call for increased production, Farm Security Administration county supervisors and many of their borrower families have been contacted in several sections of Iowa by means of group meetings, visits to individual families, and extended conversations with supervisors and local leaders. By and large, the production conditions on these Farm Security Administration borrowers' farms, and the obstacles encountered in expanding production, can be taken as fairly typical for the group of small-scale farms throughout the Corn Belt proper, except that these borrowers are better supplied with credit and managerial assistance than the much larger number of small farms not in the Farm Security Administration program.

The findings of this reconnaissance survey can be briefly summarized as follows:

There appear to be 4 major sets of factors obstructing the expansion of hog, dairy and egg production on small-scale farms in the Corn Belt, under present price conditions:

- (1) *Lack of minor and semi-permanent improvements* needed for efficient production expansion. The livestock facilities most frequently mentioned as deficient are: fencing, farrowing space (movable hog houses, farrowing pens), floor space for laying hens (poultry houses), limestone and alfalfa seed, and water facilities (inadequate wells and tanks). More limestone, phosphate, alfalfa and clover seedings in the rotation could increase total feed unit as well as protein supplies substantially.
- (2) *Insecurity of tenure and lack of protection of tenant's investment* in minor farm improvements. Many of the small farmers are tenants who cannot afford to provide the above listed improvements themselves even

if they had the financial resources to do so, because they have no assurance that they can stay on the farm for more than one year, and if they move they lose any equity they might have in improvements which cannot readily be moved or liquidated. Landlords, on the other hand, are not inclined to furnish these improvements since they usually have no interest in the tenant's livestock enterprises.

- (3) *Lack of credit and surplus farm income* available for reinvestment. This obstacle is serious on small-scale farms for two reasons: (a) these farmers are not accustomed to using production credit, are scared to go into debt, and are often ignorant of the net returns obtainable from certain highly profitable investments; and (b) the collateral security they can offer is small, and bankers and other creditors are not acquainted with them. Hence, this lack of use of needed production credit severely restricts the rate of production expansion on these farms.
- (4) *Lack of familiarity with efficient production techniques*. Experience indicates that the majority of present small-scale farmers are inherently capable of learning the use of improved production practices, but are definitely in need of assistance and supervision for acquiring such techniques. Improvement in production practices, in handling and feeding livestock, as well as in crop production and pasture management, offers relatively great opportunities for substantial increases in feed and livestock production on these small and under-equipped farms.

It is obvious that these four sets of factors obstruct production expansion on the small-scale farms under any price conditions. Even the most favorable cost-price relationships can only partly overrun these obstacles which depress the physical production rate in both feed unit and livestock output under any relevant set of price relations. If, therefore, national necessity calls for the highest possible physical output of feed, hog, dairy and egg production—and it certainly does!—these obstacles should be overcome; and since they are particularly obstructive on the smaller and under-improved farms, programs designed to overcome them must be applicable specifically to these small-scale farms. The large farmers with relatively high incomes are usually not faced with these obstructions of insecurity and lack of equipment, credit and managerial knowledge. They are, however, relatively few in numbers and cannot be alone depended upon to secure the needed production increase. The resources of the smaller-scale and less commercialized farm enterprises must be more effectively mobilized, and that cannot be done merely by announcing production goals and offering price incentives and guarantees. It can be done only by tackling these specific handicaps and shortcomings of the small operator squarely and forcefully.

IV

A war production program should take full cognizance of the handicaps and shortcomings which the small-scale farmer faces in expanding his output. Its principal objectives could perhaps be formulated like this:

- (1) to supply minor facilities and improvements which are clearly limiting production increases;
- (2) to protect the tenant's equity in any needed improvement he has made in order to increase production, and to secure his occupancy at least for the duration, provided he lives up to his rental contract and shows satisfactory progress in expanding output;
- (3) to provide production credit for specific kinds of desirable capital inputs which otherwise would not be applied; and
- (4) to furnish certain kinds of managerial assistance and supervision designed to improve relatively few but crucial production practices, and to assure that any supplies and protection granted be applied according to definite standards of performance.

How could these general objectives be implemented by specific and workable policy measures? Time is of the essence, and unless psychological attitudes and bureaucratic routines in the existing action agencies are so deeply entrenched as to defy any attempts to reorient their programs to the war needs, working through these established agencies appears preferable to setting up new ones.

Let us discuss briefly these four objectives and some tentative suggestions as to how they might be achieved.

Minor farm improvements and livestock facilities are lacking on nearly all of the farms contacted in the above mentioned survey. Over 60 per cent of these farmers are not in a position to raise their hogs on clean ground due to lack of fences, of movable hog houses, of limestone and alfalfa seed. A definite lack of farrowing space is keeping over one-fourth of these farmers from raising more hogs. About three-fourths of them could milk more cows if it were not for lack of barn space, pasture, or water facilities. Two-thirds have no alfalfa for their cows for want of lime and seed. On almost half of the farms, poultry houses are already overcrowded, and lack of floor space for hens is the most important obstacle in expanding the hen flock.

Would it be feasible to make a major portion of Agricultural Adjustment Administration benefit payments in kind? For instance, every full-time bona fide farm might be allowed a maximum ac-

count, upon which the farmer could draw for purchasing certain materials and equipment, after his plans for their use has been approved by a local committee.⁷ The committee could canvass the farmers and discuss with each what he needs most. After a farmer has received such a "material grant," he must submit to a performance check. The list of materials for which such grants might be made would include limestone, phosphate, alfalfa seed, fencing, hog and poultry houses, lumber, certain types of machinery, etc. Farmers already well equipped with these materials should perhaps not be eligible for such grants.

There can hardly be any doubt that the use of Agricultural Adjustment Administration funds along such lines would be very much more effective in bringing forth production expansion in agricultural war essentials than the present method of allocating benefit payments. By keeping control over the amount of such material grants and over the items for which they are used, an effective rationing system of scarce material, such as phosphates, fence materials, water tanks, etc. could be established, according to which these goods would be allocated to those farms where they are most needed. Moreover, the educational value of such grants, by inducing a wide adoption of certain well-tested production techniques, is great and lasting, as past experiences of the Agricultural Adjustment Administration in the dissemination of soil conserving practices has demonstrated. From the nation's viewpoint, these grants, if properly administered, would represent a very good investment, indeed, particularly as compared with the way by which the Agricultural Adjustment Administration funds are being disbursed at present.

On farms where the cost of needed minor improvements exceeds the maximum established for material grants, production credit should be provided at favorable terms (see below).

Protection of the tenant's equity in improvements would make available substantial productive capacity on the majority of rented farms in the Corn Belt. The tenant's investment in any kind of farm improvement is now absolutely unprotected and accrues to the landlord automatically upon termination of the lease. The tenant hesitates to improve the farm, since by so doing he invites

⁷ In order to make such grants go farther, farmers may be asked to match them dollar for dollar or in some other ratio.

other tenants to bid up the rent, or prospective purchasers to bid for the farm. On the other hand, landlords often fail to provide more improvements, because they are ignorant of the returns they might expect from such investments, are not directly interested in the tenant's livestock enterprises (except under stockshare leases), and frequently cannot afford to plow back enough of their rental receipts into the farm if they depend exclusively upon the rent for their living, as is the case with many widows and retired farmers. The separation of control over durable and non-durable input factors between landlord and tenant has resulted in serious deficiencies of capital equipment and unduly low levels of farming intensity on rented farms in this country.⁸

There is ample evidence that the majority of rented farms are under-improved and inadequately equipped with buildings, fences, water tanks, feeding floors, limestone and perennial legumes and pastures needed for efficient expansion of livestock production. Census data show that the average value of buildings per acre is 30 to 50 per cent higher on owner than on tenant farms in most of the Corn Belt states, that owners have over 40 per cent more plowable pasture and produce about 25 per cent more milk, 33 per cent more cattle and over 40 per cent more hogs per 100 acres of farm land than tenants.⁹

In the above mentioned survey of Farm Security Administration borrower farms, over 85 per cent of the tenants definitely stated that lack of improvements and livestock facilities is limiting their production, and that they would be willing to furnish some kinds of these needed semi-permanent and minor improvements at their own expense if they would be compensated for the unexhausted part of such improvements when they should move off the farm, or if they had security of occupancy for at least 5 years. Of 134 new Farm Security Administration tenant borrowers who received their first standard rehabilitation loans in January 1942 in Iowa, only 10 per cent were secure in their occupancy for the duration of the loan—and most of these probably were related to the landlord. Most of the Farm Security Administration borrowers in the Corn Belt are tenants.

⁸ For a discussion of this problem, see R. Schickele, *Effect of Tenure Systems on Agricultural Efficiency*, in the February 1941 issue of this JOURNAL.

⁹ See J. A. Baker, *Tenure Status and Land Use Patterns in the Corn Belt*. U.S.D.A., B.A.E., Wash. 1939 (mimeo.) and R. Schickele, *Facts on the Farm Tenure Situation*, Iowa Agr. Exp. Sta. Bul. 356, 1937.

This brief review of factual evidence serves to indicate the extent to which lack of improvements and livestock facilities are obstructing the production increases on rented farms. How might this obstacle be overcome in time to benefit our war effort? State legislation to protect the tenant's investment in improvements and his occupancy is likely to be too slow and cumbersome a device.

Would it be possible to set aside an "*improvement compensation fund*," to be administered perhaps by a special committee of the County War Boards? Whenever a tenant can show that he has invested his own resources in certain specified types of improvements contributing to war production, and is asked to move before their value was exhausted, he can claim a fair compensation for such unexhausted improvements, to be paid out of this "*improvement compensation fund*." All tenants, particularly those on under-improved farms, should be fully appraised of this protection of their equity, and should be encouraged to reinvest any surplus earnings or credit funds in such needed improvements if the landlord does not care to furnish them.

On the strength of such a provision many a tenant could afford to invest earned or borrowed funds in badly needed minor improvements independent of the landlord, and credit agencies could afford to lend money for the specific purposes covered by this compensation fund.

The amount necessary for such an improvement compensation fund would be quite small, because only a relatively small proportion of the tenants can be expected to actually move off the farm before the value of their investment is exhausted, and because those who are eligible for compensation would receive only a fraction of the original investment. For instance, let us assume that half of the 100,000 tenants in Iowa take advantage of this protection and invest an average of \$100 each in minor improvements, the plant capacity would be expanded by 5 million dollars. If we assume a high mobility rate of 20 per cent for these tenants, and an average compensation claim of 50 dollars for each moving tenant, the total disbursement from the improvement compensation fund in Iowa as a whole would be only \$500,000, or about 1 per cent of the total Agricultural Adjustment Administration benefit payments paid to Iowa farmers in 1941. This represents an upper limit of the claims that might be expected in any one year.

Production credit for specific capital inputs is required on many of

the small-scale farms in the interest of rapid output expansion. It is perfectly true that loanable funds throughout the banking system, totalling about four billion dollars, are ample for agricultural needs. It is not the amount of credit available that is inadequate, but the channels through which it is administered, the way in which it is rationed to the producers, and the demand for credit by certain groups of farmers, that call for vigorous directive measures.

The nation cannot afford to have farmers starve their livestock for want of feed grain or protein supplements if the feed could be made available to them. The aversion of farmers to debt may be a healthy trait in normal times; in the present war emergency the central problem is to put our resources to fullest use, and if this can be facilitated by special credit arrangements, such arrangements should be made quickly and effectively. In many cases, the reluctance of farmers to ask for more production credit is due to their lack of familiarity with the net returns which they can expect from following improved production techniques, such as feeding protein supplements, providing adequate floor space for hens, raising hogs on clean ground, etc. Again, the small-scale farmers who if they are owners may carry heavy mortgages and if they are tenants may be insecure in their occupancy, with little collateral security and not well known by local bankers, are particularly in need for special credit arrangements.

It is not likely that increased farm incomes, particularly on the small-scale farms, will be sufficient alone to finance the needed production increases. In general, one might expect that a typical unencumbered owner has the easiest access to production credit, but needs such credit least because the part of his increased income available for reinvestment in the farm enterprise is greatest. Conversely, the typical cropshare tenant and heavily encumbered small owner finds it hardest to secure credit, but needs it most because he benefits least from increased farm prices and output, and the part of his increased income available for reinvestment is smallest. The fact that many farmers in the past may not have been accustomed to a wider and more diversified use of production credit does not prove that no such uses and re-directions of production credit are needed in wartime.

Would it be possible to provide for a special kind of "*war production credit*" which might be granted for the purpose of getting cer-

tain specific production practices adopted, for instance the feeding of protein supplements, vaccinating hogs and cattle, applying lime and phosphate, etc.? The main function of this type of credit might be the introduction of efficient production techniques through managerial advice and supervision, using small loans mainly as a device for overcoming inertia and lack of knowledge on the part of farmers regarding the returns they can expect from such practices. The supervision of such special war production loans should be handled by agencies which have adequate personnel to render the necessary assistance, for instance the Farm Security Administration, Production Credit Association, the Extension Service, Agricultural Adjustment Administration Committees, and local banks employing farm management experts. The government would be fully justified to carry part of the risk and service costs of such loans, provided that they clearly contribute to output expansion and are used for desirable capital inputs which otherwise would not be made.

Such an arrangement for special war production credit should be burdened with as little red tape as possible, and should be extended through any existing agency qualified to service the loans. It might be possible to draw upon the funds of local banks, if the government could underwrite the loans and contribute part of the service costs and perhaps even of the interest charge, subject to a few simple conditions. In order to control volume as well as the use of such loan funds, a maximum size of loan per farm and a list of specific items for which the credit may be used could be established. Local supervisors meeting certain qualifications might be designated to render advice to farmers in the use of the funds and check on performance. Probably no collateral security should be required, but borrowers who violate their agreement or fail to meet their obligations might be deprived of their Agricultural Adjustment Administration payments or other benefits at least up to the amount of their delinquency. However, the primary purpose of such a credit policy would be to eliminate serious capital deficiencies on farms where they would not otherwise be overcome, and to introduce well-tested production techniques so that farmers may experience on their own farms the results obtainable from these investments in improved farming practices.

Managerial assistance and supervision designed to improve and disseminate few but crucial production practices need to be made

available to farmers not familiar with them. Farming as a "set of inherited motions" is a cultural luxury a nation engaged in total war cannot afford. Full mobilization of all managerial talent and expert training, and its redirection and re-allocation to those farms where it is most needed, constitute a tremendous challenge to the Extension Services and federal agencies as well as to local community resourcefulness.

For example, out of a group of over 100 Farm Security Administration borrowers in a southern Iowa county, 90 per cent did not raise their hogs on clean ground, 64 per cent did not vaccinate them, 51 per cent fed no protein supplement, 70 per cent used no limestone, 72 per cent provided no supplementary pasture for their cows, 79 per cent grew no alfalfa, and 97 per cent did not farm on the contour in 1940. This same group, however, demonstrates how effective managerial advice can be, since the number of farmers following these practices increased very substantially in 1941, within one year. Farmers feeding protein supplements and growing alfalfa increased about 45 per cent, vaccinating hogs 31 per cent, raising hogs on clean ground 140 per cent and the per cent of farmers plowing on the contour increased from 3 to 23 per cent. In 1942, the practice of these techniques is expected to show still further substantial increases.

These observations are cited merely for the purpose of demonstrating that small-scale farmers are, on the whole, amenable to managerial advice and are capable of improving their production techniques a good deal.

An intensive *educational campaign* might be launched cooperatively by the Extension Service, the Farm Security Administration, Soil Conservation Service, and vocational agricultural teachers, directed specifically to the production problems on small-scale farms which are relatively under-supplied with capital and managerial experience and over-supplied with labor.

Here, again, the existing educational channels are not sufficient to meet the war demands. Whatever trained personnel is available in a community could perhaps be organized, regardless of their specific affiliation, to carry out drives for a few specific practices. These agriculturalists might canvass every farmer, inquiring about these practices and why they are not used more widely. It should be made their function to inform farmers of any available source

of financial and technical help they may need in order to adopt this or that technique. It is important that this approach be *not* conceived as a comprehensive program of individual farm planning. In order to economize the limited personnel and avert dissipation of effort, a small list of well-tested and relatively inexpensive and simple production practices should be drawn up for each major type-of-farming region, and the qualified agents¹⁰ designated to this task should in their contacts concentrate on those farmers who have in the past not followed these specific practices, and discuss with them ways and means for their adoption.

To prevent the dissipation of the resources in funds and personnel supplied by these various measures, and at the same time to bring about an economically more productive re-allocation of the labor force, those small-scale farmers whose past record indicates a distinct lack of even elementary managerial competence should be helped to secure jobs as workers in the war industries or on farms in highly commercialized and productive areas where labor shortages are developing. The small farms they vacate should be combined with other under-sized farms nearby into more economic operating units under fairly competent operators. This might be accomplished by Farm Security Administration and Extension workers in cooperation with the U. S. Employment Service and the labor committees of the County War Boards, by currently maintaining a list of job opportunities with brief descriptions of qualifications, wages and working conditions, and by discussing the alternative opportunities with these prospective migrants in quite definite and specific terms. By the end of this year, scarcity of labor in some industries and areas might actually justify the carrying of the moving costs by the government or the employer.

These suggestions are thrown out here as a challenge for discussion and a stimulus for action. There is ample evidence that some production program embodying the principal objectives stated at the beginning of this section, is urgently needed. We must mobilize farm labor and resources to the fullest possible extent on the small-scale farms as well as on the highly commercialized farms, for the purpose not only of achieving a maximum output in these agricultural war essentials, but also of giving the small operator a real oppor-

¹⁰ These might well include competent volunteer farmers, active or retired.

tunity to contribute his part in the war effort, a genuine feeling that he has a big stake in winning this war.

V

In conclusion, let us inquire briefly into some of the fundamental economic problems which are involved in this set of suggested policy measures. Its essence consists of injecting additional productive factors in form of capital and management into those enterprises which show at present the relatively greatest deficiencies in such factors. The economic reasoning underlying this policy is obviously consistent with marginal productivity analysis. However, if the policy is to be the most effective means for expanding output, it is necessary that the following conditions are approximated in reality:

(1) On the small-scale or low-income farms as previously defined, the existing labor force is markedly under-employed and inefficiently combined with other productive factors due primarily to lack of capital, or lack of managerial experience, or both; while on the high-income farms labor is fully-employed in efficient combinations with other factors. Consequently, additional units of capital inputs on the lower-income farms can be expected to yield higher marginal returns than on higher-income farms.

(2) It is less costly and time-consuming to bring capital and managerial assistance to small-scale operators than to shift them and their families to places where capital and management is abundant at present (for instance as hired workers on large-scale farms).

(3) Small-scale operators are potentially capable (and willing) to actually perform the investment of additional capital inputs and to adopt improved production techniques with but a modest amount of managerial advice (far short of comprehensive farm planning and close supervision of farming operations).

(4) In the expansion of livestock products needed in the war effort, capital can readily be substituted for deficient land (e.g., by purchase of feed), so that lack of land on small-sized farms need not constitute a serious limiting factor in production increase.

With respect to the first condition, no one can question the existence of large numbers of farms under-equipped with livestock facilities and under-supplied with operating capital and managerial

experience. The gross value of farm products may not be the most appropriate criterion for segregating these farms from those where such deficiencies do not obtain. The implementation of the policy does not depend upon this or any other single criterion. There is, however, a question as to whether labor on the well-equipped or higher-income farms is in fact fully-employed and efficiently organized with reference to the maximum output of agricultural war essentials under present and expected price conditions. If this should not hold true for the majority of these farms, it is conceivable that additional units of capital inputs and managerial efforts could yield higher marginal returns in war essentials here than on low-income farms. It might be, for instance, that many of these high-income farms are optimally organized with reference to the pre-war price structure and a less-than-full utilization of the operator's labor, but could achieve relatively high rates of production increases in hogs, dairy products and other war essentials by rearranging their factor combinations and by fuller utilization of the operator's labor.

Even if this were typically so on the larger and higher-income farms—which I, personally, am inclined to doubt, except for a minority of these farms—it would impair the economic appropriateness of the policy only with respect to the allocation of very scarce factors with a highly inelastic supply (such as machinery, high-grade breeding stock, certain kinds of commercial protein feeds, perhaps phosphates, and in the event of widespread crop failures, marketable feed grains in 1943).

All other measures provided for in the suggested policy need not interfere with the output expansion on the higher-income farms. There is no serious scarcity of limestone, legume seeds, lumber, vaccines, feed grains including surplus wheat, etc., and the supply of personnel capable of rendering managerial assistance, although definitely scarce, probably finds its most effective application on the small-scale and lower-income farms in any case, since their operators' lack of access to resources and educational facilities has kept managerial experience and skills in production techniques under-developed. With the exception of a small proportion of inherently poor and inert operators who should be induced to shift into employment elsewhere, the great majority of small operators can be expected to respond to managerial advice coupled with additional capital by increasing their technical efficiency relatively

more than high-income operators, who on the whole are sufficiently alert and resourceful to adjust their production to war demands without the specific policy measures suggested.

As to the remaining three conditions necessary for the appropriateness of the policy, little comment is required. It is obvious that a large-scale reallocation of farm families, particularly if such shifting involves the lowering of their tenure status to hired laborers, is out of the question. All that can be done in this respect is to segregate the distinctly submarginal operators, help them find suitable jobs elsewhere, and combine their farms with other undersized holdings into more economic operating units. Beyond this, the problem is to utilize to the best advantage whatever managerial ability and labor resources exist on the large number of small-scale farms.

SCHISMS IN AGRICULTURAL POLICY

*The Shift in Agricultural Policy Toward Human Welfare**

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PUBLIC policy is the outgrowth of many forces. The pressure of events themselves, such as the postwar depression of 1921 or the great depression of the early 30's; the leadership of far-visioned statesmen such as Hamilton or Wallace; organized pressure groups; and the technical suggestions of professional civil servants, all contribute to and influence the legal crystallization of policy in legislative enactments. After the laws are passed, the decisions of administrators in carrying them out and the discussion or education which accompanies them, also contribute to policy-making.

An economist might discuss agricultural policy by considering the economic pros and cons of what has been done, the alternative policies that might have been followed, and the desirability of what has been done versus the possibilities of alternative procedures. He might restate in formal economic terms the significance of the steps taken as a shift in risk-bearing from the individual to the community, or as a partial transition from a price-controlled economy to an institutionally directed one. He might attempt to trace the influence of economic thought and analysis in the evolution of policy and to determine how far economics and economists have been major elements in policy formulation. Instead of any of these procedures, this paper is devoted to describing as objectively as possible what the main threads of the evolving policies have been, as a net result of all the causes which helped shape policy. In this description particular attention has been given to the effects of these evolving policies upon different groups in the farm population, and to their concern with elements of individual welfare other than dollar income alone.

Early Agricultural Policy. Public bodies in this country have always paid much attention to agricultural policy. The increasing public intervention in the direction of the industry during the past two decades and the massive public appropriations in the field of

* This paper was read before the joint session of the American Farm Economic Association and the American Economic Association at New York City, December 29, 1941.

agriculture over the past decade constitute more a shift in emphasis and magnitude than a new field of public interest.

The traditional agricultural policy during the 18th and 19th centuries was one of encouraging settlement and improving technology. Exploitation and settlement were dominant at first. The Homestead Act and canal and road construction illustrate this phase. Improving the technology of production, and education for "scientific" farming began to be stressed from the Civil War onwards.

Establishment of land grant colleges and agricultural experiment stations, and after the turn of the century the beginning of the Agricultural Extension Service, are landmarks in this phase. Settlement, technology, and education continue to be important elements of our public agricultural policy, as evidenced by activities such as the irrigation undertakings and federal region research laboratories, and by such recent innovations as pneumatic-tired farm equipment and hybrid corn.

Economic Problems come to the Fore. The rising price level and costs of living after 1900 stimulated interest in the economics of agriculture, both in farm management and marketing, with new research in both these lines. This was greatly stimulated by the agricultural depression after the first World War, with its congressional investigations, surplus problems, and farm relief proposals. The distress from the reduced farm incomes of this period was aggravated by the high debts, taxes, and freight rates inherited from the war inflation. It gradually became evident that efficient production alone could not assure farm prosperity so long as ever-increasing supplies were thrown on the market without reference to domestic or foreign demand. Extensive research in factors affecting the prices of farm products, plus improvements in methods of forecasting production, laid the basis for Agricultural Outlook statements interpreting probable future developments to farmers. These outlook reports did aid individual farmers, but did not serve to correct the major unbalances. This public policy of aiding farmers with information and advice gradually shifted to more positive programs. These began with the stabilization operations and grandiose cooperative marketing schemes of the Federal Farm Board, and after those failed to absorb the impact of the 1929 depression moved on to the much broader farm action programs of the New Deal.

Agricultural Policy during the 1930's

Public actions in the field of agriculture over the decade of the '30's may be grouped into two phases—the economic adjustment phase and the human welfare phase. Economic adjustment occupied the center of the stage in the first half of the decade; human welfare began to be stressed in the second.

Economic Adjustment. Economic adjustment had its roots in the earlier farm relief proposals and cooperative marketing experiments. In these proposals and activities, farmers and their leaders were dimly grappling with the problem of keeping the economic balance true between farming and other industries in a rapidly changing world. Even though they had never heard of "monopolistic competition," they felt that city industry under corporate organization was acquiring monopoly powers which farmers could not resist. Though they were not fully aware of the shrinkage of foreign markets and international trade under the world-wide intensification of economic nationalism, they knew that export crops were in increasingly bad shape. The effort to secure "control of marketing" through nation-wide cooperatives was a more or less conscious attempt to match monopoly power in industry by monopoly power in agriculture. The McNary-Haugen plan, export debentures, and Farm Board price stabilization were all attempts to wrestle with the declining export demand.

Production Control. The first Agricultural Adjustment Administration, with its control of production of export crops and its marketing agreements for some domestic products, represented an extension of these efforts. After the processing taxes were abolished, the benefit payments became direct additions to farm income from general federal funds. Droughts and bumper crops, a partial industrial recovery at home, and tightening economic and political tensions abroad, all obscured the net effects of the production adjustment efforts. Production control was supplemented by price-supporting loans. Supported prices on the domestic market in turn led to various types of discounts on export sales. The philosophy of production control gave away to that of the ever-normal granary, with its increased reserve supplies and tendency to narrow the range of price fluctuations from year to year. Exports continued to shrink, especially for cotton. How far this was a result of our own price and production policy is a matter of controversy, which will probably never be precisely settled.

Despite the difficulties of appraising the net results, it is clear that the income of farmers compared to non-farmers has been materially higher since 1933 than it was before that time.

Economic Democracy. The farm economic adjustment programs have made notable contributions to the administrative techniques for economic planning under a democracy. This development was greatly aided by the existing county-state-federal system of agricultural extension, and its representative on the firing line, the local county agent, in intimate contact with individual farmers. Local administration of the action programs has been decentralized through township and county committees selected by the farmers themselves. Planning and program making have been increasingly decentralized through county planning committees and county, state, and regional program-making conferences. Agricultural action programs are made today as a working compromise between over-all proposals developed from the point of view of the nation as a whole, and localized proposals developed "from the grass-roots up" from the point of view of the possibilities and needs of each local community.¹

This democracy is not perfect, of course. The referenda on proposed steps such as marketing quotas are open only to the producers concerned. The representation of consumers through the Consumers' Counsel is weak compared to pressures from producers. A scattering of farmers sometimes is strongly aggrieved over restrictions imposed upon them by the majority. Even so, the Agricultural Adjustment Administration programs have demonstrated that production can be planned on a nation-wide scale through democratic procedures, and that production by millions of individual units can be coordinated according to plan. Each operator meanwhile remains responsible for running his unit within his assigned quotas as efficiently as possible. Production remains the responsibility of the individual entrepreneur; only volume or acreage is fixed by the national program. The discussions of farm economic problems which have accompanied the decentralized planning and administration have helped make farmers as a whole more literate economically than any other comparable cross-section of the population. Farmers' work in democratic planning, administrative

¹ Edwin G. Nourse, Joseph S. Davis, John D. Black, Three years of the agricultural adjustment administration, Brookings Institution, Washington, 1937, pp. 63-64, 255-263, 477-479.

democracy, and economic education may serve as pioneer experience which other sectors of our economy may some day utilize when we come to plan broadly over many industries for a general and continuing expansion in our total production and consumption.

Human Welfare. The human welfare phase of the farm policy emphasizes the present and future well-being of the people who live on the land, rather than merely dollar income, total or average. The shift toward human welfare has been a gradual development. The rural programs of Federal Emergency Relief Administration, the early experiments with subsistence homesteads and other farm settlements, the provisions in the earliest Agricultural Adjustment Administration cotton contracts for sharing the payments with tenants and croppers and restricting displacement, and the Federal Emergency Relief Administration purchase and distribution of surplus products to low-income people, all were efforts at improving the position of the low-income groups in agriculture. Gradually these efforts were transferred from other parts of the Government to the Department of Agriculture, and welded into a consistent program. The creation of the Rural Resettlement Administration under Tugwell in 1935, and the shift of Agricultural Adjustment Administration policy from production limitation to soil conservation following the Supreme Court's *Hoosac Mills* decision in 1936, may be taken as the beginning of direct emphasis upon human welfare. Although this emphasis has gradually increased, economic adjustment still continues as a major element of policy.

Soil Conservation. The new emphasis on soil conservation was itself a shift toward human welfare objectives. Efforts to insure that our resources of soil, water, and forests are maintained unimpaired place future welfare on an equal footing with current welfare. These efforts have included intensive experiments and demonstration areas of Soil Conservation Service, required conservation practices under Agricultural Adjustment Administration aided by conservation payments soil conservation districts established under State laws in many areas, and a great expansion in public land purchases for forest and recreational uses. A local soil conservation district may require a farmer to terrace his land or furrow his fields so that the water run-off or soil blow-off will not destroy both his land and the land of his neighbors. If he fails to perform the necessary operations, the district will do them, and add the cost to his taxes. In the past, individual farmers have often

been forced by low incomes to disregard the future and mine their land to keep alive for the present. It was literally true for them that a fertile farm in the next generation, discounted to present value, was less important than the extra income they could get by wasteful farming. Today that discount of the nation's future is being stopped. Not only has soil been conserved but fertility has been increased. Today we are producing relatively more cotton, more wheat, and more corn on fewer acres than ever before. This increased reserve productive power of our farms is a great national resource in the strenuous days that lie ahead.

Rural Rehabilitation. Other programs have dealt even more directly with farm people as people. Rural Rehabilitation and the Farm Security Administration have led the way in showing how farm families apparently hopeless could be put on their feet and made self-supporting. A decent house, a good garden and lots of home-canned vegetables and farm-produced meat, milk, and butter, plus the work stock and tools to farm properly, and skilled advice in the use of their resources and instruction in production techniques, has put new heart into hundreds of thousands of farm families. The malnourished, poorly-clad families whose eyes stare out at you from the hopeless pages of "You Have Seen Their Faces" have been changed into well-fed and promising future citizens. Just last month I visited one such family in Texas. Four years ago they were cotton sharecroppers without a cent to their name. Today they are cash tenants on a well-stocked farm which produces as much income from butter as from cotton. They have repaid every cent advanced them, while living better than ever before. This winter they will go onto a tenant-purchase unit, to start buying the farm under the long-term payments under the tenant-purchase program. To date 931 thousand farm families—one-seventh of all farm families—have thus been given a fresh start; while 22 thousand have been started toward ownership under the tenant-purchase program. Trim painted farm homes and productive farm gardens are beginning to replace the tumbledown croppers' cabins of "Tobacco Road." This unspectacular work scattered over the entire country is far more significant in its total achievement than the more dramatic experiments with subsistence homesteads, farm communities, and cooperative ginning and purchasing. Yet these too are valuable as demonstrations.

In addition, Farm Security in cooperation with local Medical

Associations is pioneering in programs of medical care and hospitalization for its clients which may blaze the way for better medical and dental services for all low-income groups generally in the future.

Aid to Farm Laborers. Even worse off than sharecroppers, farm laborers have been the ultimate forgotten men in our society. The lack of previous interest in their welfare is indicated by the sparse data concerning them and by the tendency of past farm management studies to consider them only as "labor expense," and make the highest income for farm operators—the individual entrepreneurs—the sole test of successful farm management. Today we are beginning to recognize that satisfactory living for *all* the people on the land may be equally important.

Some steps have been taken to aid farm laborers directly, such as the abolition of child labor and the establishment of minimum wages under the Agricultural Adjustment Administration sugar programs, and the creation of labor camps and other settlements for migratory workers. As a whole, however, farm laborers as such have remained outside the scope of social security and wage hour helps, and farm wages have lagged behind rising farm income.² For that matter, farmers as a whole have not yet been covered in old-age or workmen's compensation insurance, nor are dispossessed farm families eligible for unemployment payments.

Farm Youth. One important farm crop has been youth for city industries. Farms annually produce nearly twice as many youth ready to go to work as farmers retiring from active farming make places for. Until very recently our educational system largely ignored the need for training half the farm boys and girls in industrial and mercantile pursuits, particularly at the secondary school level. Many farm boys and girls going into industrial careers were forced to start at the unskilled labor level. Civilian Conservation Corps and National Youth Administration have made a beginning in training these extra farm youth in industrially useful skills. The recent special defense training courses have carried this industrial training for farm youth even further. Permanent facilities are needed for industrial vocational training paralleling agricultural vocational training at all levels.

² Louis H. Bean, The lag in farm wages, agricultural situation, Vol. 21, No. 10, October 1937, pp. 11-14; and Many factors affect farm wages, Vol. 21, No. 12, December 1937, pp. 13-15. John D. Black, Agricultural wage relationships, Rev. Econ. Stat., Vol. 18, February 1936, pp. 8-15.

Schools for farm children have almost always been below the levels of city education; farmers have more children to educate and less income to do it on. In 1929 the farmers of the Southeast had to educate $4\frac{1}{2}$ million children but received only 2% of the national income on which to live. The cities of the Northeast had $8\frac{1}{2}$ million children to educate, but had 42% of the national income available as their income. To correct this situation, the President's Advisory Committee recommended a permanent program of federal grants-in-aid to strengthen education, with the largest grants to the States least able to carry their own educational load.³ Although such federal legislation has not yet been enacted, several States have adopted educational or fiscal programs which support education in rural areas from funds raised in urban areas. The States where rural education is most deficient, however, in the Southeast and the Southwest, mostly have slender industrial resources and must wait upon federal aid. For white and negro alike, better basic education is one essential step toward solving the problem of our rural slums.

Present Status of Agricultural Policy

Problem of Displacement. While these efforts to improve the position of people on the land were under way, farm people were being driven off the land by many causes including droughts and the steady introduction of power machinery. The gain to the owner if he could shift from many tenants or croppers to a few wage hands produced a continuing migration of families "tractored out," long after the exodus of families "blown out" had passed its peak. Even in the corn and wheat belts factory-type farms were beginning here and there to displace family-size farms. With pneumatic-tired equipment a farmer can now work fields 5 to 10 miles away as readily as he could fields $\frac{1}{4}$ to $\frac{1}{2}$ mile away ten years ago. Progressive and ambitious farmers are buying or renting nearby farms, combining them with their own, and operating them with a fraction of the manpower formerly used. While this development may be in the direction of a continuously more efficient agriculture, it does have the social effect of substituting one well-to-do owner family and one or more much poorer wage-hand families for the previous more homogeneous group of moderately well-to-do operator families each handling a family-size farm.

³ Report of the Committee, the Advisory Committee on Education, Government Printing Office, Washington, D. C., p. 26, 194-221, 1938.

Policy Toward Family-Size Farms. A year ago Secretary Wickard appointed a special committee representing all federal agencies concerned to study this problem with especial reference to the relation of the action programs to farm family displacement, and to changes that might be made which would help maintain family-size farms. This committee recommended a policy as follows:

The U. S. Department of Agriculture believes that the welfare of agriculture and of the Nation will be promoted by an agricultural land tenure pattern characterized by efficient family-size owner-operated farms, and one of the continuing major objectives of the Department will be the establishment and maintenance of such farms as the predominating operating farm unit in the United States. Policies within the Department on credit, other action programs, land acquisition, and research will be designed and administered so as to achieve this objective as rapidly as available funds, authorizations, and existing legislation will permit. It should be recognized, however, that the objective cannot be achieved rapidly without the wholehearted support and cooperation of agricultural leaders and legislators in the States. State legislation in support of the objective should, therefore, receive careful consideration.

The Department will attempt to prevent large farms from becoming so large as to drive out family farming, and it will, at the same time, do what it can to help make small farms large enough to provide each farm family with a reasonably adequate minimum level of living. This objective is obviously inconsistent with a possible alternative objective of maintaining opportunity in agriculture for the maximum possible number of farm families. The Department does not believe that agriculture should be made the dumping-ground for the industrial unemployed. Social security and relief provisions and industrial programs should be made sufficiently adequate for non-farm sources of income to provide for the industrial segment of our population, in bad times as well as in good.

The Department of Agriculture believes that only as many farm families should be permanently engaged in agriculture as can be afforded an opportunity to maintain a reasonably adequate level of living. There are at present more farm families attempting to gain a living from the land than can be provided with efficient family-size farms and, while this situation prevails, the Department will help insofar as it can to make the situation as tolerable as possible. This help will be expressed through added encouragement and assistance to disadvantaged farm families to enable them to make the most out of their limited land resources, through increased production for home use, through cooperative endeavors and enterprises, and by assisting them to obtain medical and dental care and sanitation facilities, vocational training and guidance, and to develop part-time employment off the farms wherever possible, through new local industry, public works, or otherwise.

The National Defense Program is increasing industrial employment, reducing somewhat the surplus of farm labor, and accelerating the trend toward mechanization and commercialization of agriculture. The Depart-

ment will do what it can to use the opportunities created by these developments to increase the size of small uneconomic and inefficient family farms to efficient family-size farms, and will endeavor to prevent, insofar as it can, the consolidation and composition of family farms into factory-type farms.

The Department believes that farm people for whom efficient family-size farms cannot be established, and who otherwise are unable to find full employment in agriculture, should be assisted in finding opportunities to serve the Nation in non-agricultural vocations.

In addition to this statement of policy, specific steps were agreed upon by which Farm Credit and Farm Security Administration operations would be modified to encourage family-size farms, Agricultural Adjustment Administration programs would be modified to further insure uniformity in allotments and in the treatment of tenants and sharecroppers, and farm placement information would be improved, both for farmers seeking farms and labor seeking jobs. These recommendations were approved by the Secretary and are now being carried out by the various action agencies. In addition, new legislation was recommended to empower the Farm Credit system to help in refinancing farm indebtedness, to adjust mortgages held by them, and to finance farm land repurchase by the farmer owner after bankruptcy proceedings; and to enable Agricultural Adjustment Administration to readjust its small-farm payment provisions so as to make them available to more persons living on farms and to require positive live-at-home performance in return for these special payments. Suggestions were also made for broadened programs of land acquisition for settlement, especially in areas like the Mississippi Delta where new lands are being brought into use and sold privately to settlers at prices far above their cost or agricultural value. Such lands once publicly acquired would be developed and sold in such ways to as to promote both good land use and efficient family-size farms.

Farm management research to provide a basis for operating decisions as to what constitutes efficient family-size farms in various types of farming areas, and how they should be financed, equipped, and operated, is under way in cooperation with the state colleges, and will be extended as circumstances permit.

The changes in farm credit policy included recommendations to the district boards of directors of the Farm Credit Administration that the Federal land banks modify their policies so as to encourage maintenance of efficient family-size farms, but to dis-

courage the enlargement of farms above that size with resulting displacement of farm families. It was recommended that this policy be followed by the land banks in land financing and in leasing or disposing of foreclosed farms. It was also recommended that the banks for cooperatives and production credit corporations encourage the extension of credit service to operators of family-size farms and that the latter lend their influence toward proper representation of this group on boards of directors of production credit associations.

The Farm Security Administration will back up these efforts by collaborating with Farm Credit to extend advisory assistance and credit to delinquent borrowers, and by expanding as rapidly as available funds permit its general program of rural rehabilitation, loans and service, cooperative service loans, medical and dental care, and other activities which help support and improve the family-sized farm.

It is expected that this series of changes, extending through the whole structure of agricultural action and research programs, will strengthen the position of the family-size farm, maintain a larger number of farm families in independent position with moderate incomes, and help resist the pressures toward the development of employer and wage-earning classes in farming. To the extent that these efforts can succeed, they will help maintain a more uniform distribution of income among farm families, rather than the intensified inequalities which might result from the further development of a rural proletariat. Yet it must be admitted that these efforts may not yet be adequate to check the tide toward ever larger and more commercialized types of farming in many regions.

Concern for Low Income Consumers. Paralleling this shift toward policies concerned with the welfare of farm people has been a growing interest in the welfare of the individual consumers of farm products, viewing them also as people who could be hungry or cold, ill-fed or malnourished, instead of merely as intangible "demand." A whole series of public farm policies has been developed to protect the interest of consumers as such, including the Ever-Normal Granary reserves, the free distribution of surplus products, the school lunch program, the special penny-milk and nickel-milk schemes for persons on relief, and most spectacularly, the food-stamp and cotton-stamp programs. Many of these programs in the agricultural field have increased the quantities of

food and clothing that low-income groups could buy with the incomes they have, supplementing the measures aimed at more even distribution of income. In addition to these action programs, the recent general Nutrition Program, with its emphasis on both more food and better food for the mass of our consumers, is a further step toward human welfare consciousness in public policy.

Economic Significance of Human Welfare Emphasis. These efforts to broaden the distribution of income in agriculture and to increase the consuming power of low-income consumers have an economic aspect as well as a human-welfare aspect. They raise the consuming power of low-income groups, rural and urban, and they help stave off a new concentration of income in upper-income groups of factory-type farm operators. At the same time the economic adjustment programs, raising the income of farmers generally, also contribute to increasing the buying power of one of our lowest-income groups. Both economic adjustment and the more specific human welfare programs thus move in the general direction which all our economic efforts must move after the war if we are to find workable answers to the basic economic problem of our time—how to establish and maintain the balance between goods and services produced and goods and services sold for consumption and investment at levels of national income which correspond to full employment. In the past decade, of course, this balance has chronically been established at income levels corresponding to heavy unemployment.

Effect of the War. It is a little ironic that these human welfare programs, and particularly the efforts to conserve the family farm, should have reached their present crystallization just at the time that the new world war was shifting the entire agricultural scene. Excess farm population is being drawn back into war industries and other city industries, and farm adjustment programs are being shifted to increase output of the products needed for our expanding domestic consumption and for lend-lease shipments. Expanded production instead of controlled production has become the emphasis. Farm youth are being trained for defense jobs. New plants are being built in rural areas, where they can draw on local labor surpluses. Farm land is being restricted by construction of airports, munition plants, and military reservations. Unemployment has already been cut in half. If the war lasts long enough we may reach such full utilization of manpower that labor will become the limiting factor, instead of materials or machines as at present.

It will probably take one to two years to reach such a level, even with a really all-out effort. As labor becomes scarcer and scarcer, however, that will put increasing pressure on farmers to produce the maximum of products with a minimum of men. Long-term interests in the maintenance of family farms may have to give way to immediate war necessities. Factory types of farming may be stimulated which will tend to persist after the war. On the other hand, higher wages for farm labor may reduce the advantage to be gained by shifting from cropper or tenant farming to wage-hands. In any event the concern over the large proportion of draft rejections for avoidable physical defects, the programs to rehabilitate some of the rejected men, and the general effort at better nutrition for defense may leave lasting effects on our food habits.

Post-War Prosperity. Our programs for better human welfare cannot succeed if after the war period we let farms and factories sink back into chronic depression again. The defense and war effort is demonstrating how vast are our productive powers when once we really put them to work. Already in 1941 we produced 16 billion dollars worth of defense products, and at the same time turned out in physical volume one-sixth more goods and services for civilian consumption than ever before.⁴ Increases in production of war material beyond this point will come more and more at the expense of consumers' durable goods. Our expanding farm production and our great stockpiles of wheat, cotton, and corn, however, insure that both our citizens and our associates abroad can continue to be well fed and well clothed throughout a tremendous war effort. When peace is won we will have a greatly increased production capacity available for our civilian needs, both on farms and in factories.

After the war we cannot let our economy contract to its pre-defense levels. Agriculture cannot prosper unless industry is also prosperous. The farm problem created by heavy unemployment in the cities, cannot be solved on the farm. Most farmers and most businessmen assume that a postwar depression is inevitable. Public agencies and forward-looking businessmen refuse to share that pessimism. In many different agencies and institutions, public and private, programs are being developed to help maintain full em-

⁴ Adjusted to eliminate price level changes, the production of non-defense consumers' goods and services of 1941 seems likely to exceed that of 1937 by 15%, and of 1929 by 21%.

ployment in the postwar period. In the Department of Agriculture a Postwar Planning Committee working with regional committees and the State and county planning committees throughout the country, is starting to work out with farmers the steps needed to help maintain as full production afterwards for the ends of peace as we achieve now for the ends of war. These include the actions needed in national policy to sustain industrial employment, as well as the specific steps that can be taken on farms. The same human machinery of economic democracy that was forged out to deal with economic adjustment downward when contraction was needed, and is being applied to expansion now that expansion is in order, is being readied for the still larger tasks of postwar adjustment. In that task we must not fail. Whether we think of the abstract economic elements of a prosperous agriculture and active industry, or of the warm human aspects of alert, happy, healthy, and well-fed farm families and city consumers, we know that neither can endure, unless this time after we win the war we also win the peace.

*Agriculture as a Commercial Industry Comparable to Other
Branches of the Economy**†

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THE general title of this session implies a simpler and more specific divergence of view in agricultural policy than that which actually exists. Attitudes and policy proposals do not fall easily into well-defined categories. There are broad fundamental differences in outlook which characterize important groups of writers. Within these groups we find many individual differences as to aims and methods. Many of these are minor and are shortly resolved in the day-to-day operations of the various agencies. Others persist for considerable time but eventually fade into obscurity. Such, for example, was the sharp division of opinion among early leaders of the Agricultural Adjustment Administration where wide differences appeared as to the relative merits of an approach in terms of production adjustment as against efforts to establish

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† This paper was read before the joint session of the American Economic Association and the American Farm Economic Association at New York City, December 29, 1941.

controls at the marketing stage. Noticeable divisions of opinion have occurred in devising approaches to the tenancy problem, in blocking out policy for the Farm Credit Administration, and in many other aspects of agricultural policy. In general, however, these lines of division are not so deep as those we are discussing here. They pertain more to methods than to basic objectives. Those who have differed on these matters have for the most part seen eye to eye on the desirability of improving farm incomes within the existing framework of commercialized agriculture.

Even to catalogue the lesser schisms, important though they are, would involve us far beyond the limits of a single paper, and certainly such a scattering approach would contribute little. I shall attempt therefore to consider certain broader differences in outlook which pertain to the kind of rural economic structure we may be striving for.

There seem to be some three distinctly different attitudes toward the agricultural problem in its broader aspects. First, I shall mention the *laissez faire* attitude which was very characteristic of the late Nineteenth and early Twentieth Century decades. This would recognize no warrant for subsidy or special aid to agriculture. Those holding this view in extreme form have challenged even such facilitating legislation as that establishing the federal land banks, the enabling legislation for farmers' cooperative associations, and the controls established in the grain and livestock markets. For reasons which will appear later, at least by implication, they have usually not opposed federal contributions for agricultural research and education. This attitude has not been common among farmers and agricultural workers in recent years. It survives chiefly in the minds of certain groups of business entrepreneurs. For the most part, *laissez faire* attitudes have receded into the background in both agricultural and nonagricultural realms. Governmental intervention in all phases of economic activity is now so widely accepted that discussions in terms of non-intervention are largely academic. Significant controversy is concerned more with how far intervention shall be carried and what its aims shall be.

Leaving aside then the *laissez faire* approach, let us consider a broad general conflict in objectives which appears repeatedly in greater or lesser degree in writings of the advocates of various types of agricultural policy. Those in one group attach great importance

to the maintenance of a large farm population and look upon farming as a way of life which is distinctive and superior. They deplore highly commercialized types of farming and propose measures designed to facilitate the acquisition of lands by relatively small operators who do most if not all of their own work. Agriculture is looked upon as an important continuing outlet for people not needed in nonfarm occupations. In general the advocates of this view would do away with or discourage large-scale operations in farming.

The second view is that of most commercial farmers and has been widely accepted among agricultural economists, both in the Department of Agriculture and in the Land-Grant colleges. It regards farming as a business, and measures farm success largely in terms of monetary return to the farm entrepreneur. Sentimental views concerning farm life are, to be sure, not uncommon among people who take this attitude. In the main, however, they are concerned with farming as a way of making money and attach no great importance to numbers of people engaged in agriculture or to intangible values attributed to life in the country. Their concern is rather to combine labor, management, and land in such a way as to maximize entrepreneurial profit without much regard for the wider or narrower distribution of returns from management, labor, and land as among all the workers engaged in agriculture. Managerial ability and superior training are recognized as scarce factors not possessed by all farm workers in equal degree. In their view, scale of operations in agriculture as in urban industry would result from the individually planned combination of financial resources, managerial ability, labor, and land, rather than from public efforts to spread returns from each of these factors among as many people as possible.

These divergent views can be made more clear by reference to examples from the two extremes. In the recent book by Baker, Borsodi, and Wilson, Dr. Baker opens with a quotation taken from the facade of Hilgard Hall on the campus of the University of California. It reads, "To rescue for human society the native values of rural life." He continues, "The evidence indicates, in my opinion, that the destiny of the nation, indeed of modern civilization, lies primarily in the hands of the rural people."¹ Dr. Baker proceeds

¹ O. E. Baker, Ralph Borsodi, and M. L. Wilson. *Agriculture in modern life*, p. 3. Harper and Brothers, 1939.

A similar thesis is presented by Professor Louis B. Schmidt in the pamphlet,

from here to develop the thesis that the trends of most profound significance are the gradual loss of land ownership by farming people and the declining birth rate. He footnotes his first page with a rather significant statement which reads in part as follows: "... it is fitting that I should note that the Department of Agriculture has no policy, no attitude even, in many matters I shall discuss."

The opposite extreme is expressed, none too elegantly, in a remark attributed to a western farmer. A young anthropologist was engaged in a community survey under the auspices of the Department of Agriculture. The farmer, after a brief opening conversation, asked, "Are you connected with the Department of Agriculture at Washington?" "Yes, in a way," replied the investigator. Then said the farmer, "Young man, I want you to write this down in your notebook just as I'm saying it. You tell them jackasses down there that farming is a business. It ain't a way of life." Many a farmer throughout the country would express this attitude, possibly in more polite terms, but with entire conviction that he states the true situation.

The first view has long been held by many philosophically minded people from the time of the Brook Farm idealists and before down to the present. It was a common undertone in the writings of agricultural publicists through the latter half of the Nineteenth Century. Such writers as Joseph E. Wing, Alvin Howard Sanders, Judge Bigelow, Herbert Quick, and many others surrounded farm life with an aura of romance and idealism which had its roots in nostalgic reminiscence about the more self-sufficient agriculture of their boyhood days. It attributed to farm life superior moral values, greater political stability, better health conditions, and other virtues. These writers were not, of course, concerned with birth rates as is Dr. Baker. Nor did tenancy loom large in their thinking. They did have vague awareness of city slums, of sweatshop conditions, and of unassimilated foreign groups in the urban centers. There was, to be sure, more than a little truth in the assumptions they made. Farm people in general agreed with them, and indeed many

The challenge to democracy, the family farm in the machine age, Iowa Agr. Exp. Sta. Bul., p. 23, (New Series), 1941. He opens with the statement, "The family farm is the most fundamental economic institution in American civilization."

Without expressing so positive a view, Carl C. Taylor commented in 1926, "There is little question that the first rural problem to reach the proportion of universal concern in America was the so-called 'tragedy of the urbanization of our population'." Amer. Econ. Review XVI(1): 155. March, 1926. (Supplement.) Comments in similar vein could, of course, be multiplied *ad infinitum*.

still would do so. It would be unwise, however, for us to accept this version of comparative conditions as accurate for our day. Both rural and urban ways of life have changed markedly from what they were in the last century.

Since the occurrence of the industrial revolution in agriculture, the view that farming is more significantly a way of life than a business is not characteristic of farm people in the major farming areas. Farmers have become money conscious and price conscious. For most of them farming is merely one of the alternative ways of earning a money income. They regard a parity price or a parity income as a goal in itself. Its attainment is not expected to change their lives or the main outlines of rural life in any important way. More income may mean a newer car, better clothes, possibly some reduction of debt, though it is almost equally as likely to result in speculative land purchases and a new upswing in farm indebtedness. Tenant conditions, labor relations, and the pattern of operating units would remain much as they are at present. It is likely also that the attainment of the parity goal will not check farmers' demands for further monetary concessions from the government. New formulae will be demanded and new goals will be set up.

This trait is, of course, in no way restricted to farmers. The labor organization that gains a wage advance will not stop asking for more, nor will the sales manager who reaches his goal refrain from establishing new objectives either in price or quantity to be sold. But these very facts are evidence that agriculture is now a commercialized industry and that its goals and even its techniques are very similar to those in other branches of the economy.²

² The Astor-Rowntree group in its deliberations of 1934-1939 stated its conclusions as follows: "We have re-examined with sympathy the thesis that agriculture deserves quite exceptional help because it is an industry different in kind from urban industries in that it produces citizens physically, and in many ways mentally and spiritually, healthier than those produced in the towns. Although the experience of other countries goes to prove that the rural population tends to give stability to a State, yet it is difficult to support this general thesis without qualifications. In any case, it requires that we provide standards of life in terms of wages, housing, health, and education more nearly comparable with those enjoyed by the city population. It would seem as important to raise the standard of living in agriculture as to increase or preserve the numbers engaged. To do both might involve a prohibitive cost. Actually, the shrinkage of numbers employed in British agriculture is a tendency found in all progressive nations. As technique improves, the numbers required to produce the primary foodstuffs are necessarily reduced. If the porportion of the total population employed in British agriculture is less than in most other countries, this may not be a sign of decay but, on the contrary, a measure of a higher level of development and a higher standard of life. . . . We feel bound to state that no adequate agricultural policy can be based on a mere maintenance of numbers." British

To be sure, great numbers of people find a deep satisfaction in farm life that runs beyond mere monetary returns. There are others who have a similar preference for teaching, for railroading, for work as mechanics, and for other specific occupations. But these do not greatly affect our problem. They are likely to find themselves in the calling of their choice and to remain there despite the ups or downs in economic status of the occupation. In all lines there is a great twilight zone of workers who at some stage in their lives chose their occupations by chance or on the basis of relative economic opportunities at the time the choice was made.³

There are also large numbers in agricultural and semiagricultural pursuits who took up farm life as an escape from unemployment, underemployment, or misfit occupations in which they were unhappy. In this group are many operators of small and part-time farms. The very small farm does not in the main provide a way of life which appeals to the young worker, nor is it usually a first choice. It is likely to be an alternative to something preferred but unattainable. This type of agriculture will be considered later. There are still other groups of farm people which must be taken into account in any adequate approach to the problems of agricultural policy. Not least among these are tenants, croppers, and hired farm workers. These too will be considered in a later section.

It is our purpose here to try to strike some reasonable balance between the divergent views described above. In other words, to seek an approach to the farm problem which will not set farm people apart as a unique group but will suggest instead a reasonable relationship between agricultural and nonagricultural pursuits. The emphasis is upon the structure of the industry. For lack of space many of the broader nonstructural aspects discussed by Dr. Canning and Dr. Ezekiel are not touched upon.

Agriculture, a Report of an Inquiry, organized by Viscount Astor and B. Seeborn Rowntree, Longmans Green, London, 1939, p. vii.

Despite some minor inconsistencies, this thoughtful joint statement carries a good deal of conviction. Even on the score of stability, it is not easy to make a case for superiority on the part of predominantly agricultural countries such as India, China, or in lesser degree, France and Italy as against highly industrialized nations like England and Germany.

See also the essay on Agricultural fundamentalism, by J. S. Davis. On Agricultural Policy, Stanford University Press, 1939, pp. 24-43.

³ The basic trend in the Western World has been for a smaller and smaller portion of the population to be engaged in agriculture, and this for very fundamental reasons. These are discussed at some length by E. W. Shanahan in the article, Economic factors in the changing distribution of population between urban centers and rural areas, *The Economic Journal*, pp. 395-403, September 1927.

To dispel in some measure the inevitable vagueness that permeates discussions of policy, I am going to state propositions rather specifically. For convenience I shall take up the various major groupings of farms and farm people separately and later return to a more general consideration of the warrant, or lack of it, for public contributions in the interest of betterments or expansions in agriculture.

We are first concerned with that 50 per cent of the whole number of farms which is reported to produce about 90 per cent of the products sold off the farms.⁴ This is the group which is of major economic significance for the economy as a whole. It could easily produce all of the commercial farm products now used and free the other three million farmers for other occupations if that were desirable. The warrant for retaining in agriculture these three million small operators is not production or the need for it, but such contribution as is thus made to the security, happiness, and self-support of these families. Their number can be increased, though at considerable cost. Their number can likewise be decreased but also at a cost which is of a different kind.

We should recognize the need for some degree of public intervention. The profit motive alone is not adequate to create a reasonably satisfactory situation in agriculture. Publicly directed adjustments are necessary to prevent wastage of natural resources; to improve education, health, and social conditions; to bring about kinds and amounts of production that will be in the public interest. In such programs every effort should be made to avoid imposing on agriculture a single pattern of social organization, tenure, or farm size. We should, in fact, retain as far as possible the assets of

⁴ This statement of proportions produced by the more commercialized farms is a very rough approximation. Not only does the proportion itself change from time to time but various computations from census data are not wholly in agreement. Dr. O. E. Baker says, "Approximately half the farmers in 1929, a good year, produced less than \$1,000 worth of products, including those consumed by the farm family. This less productive half of the farms produced only about 11 per cent of the products 'sold or traded,' to use the census phrase. Probably the more productive half of the farms in a few years could be brought to the point of producing this remaining 11 per cent if prices of farm products afforded encouragement. Half the farms of the nations are not needed to feed and clothe the nonfarm people. But these less productive farms, measured in food and fibers, are contributing an increasing proportion of the citizens of the future, for the birth rate of the people on these farms is high." A graphic summary of the number, size and type of farm, and value of products. U.S.D.A. Miscel. Publication 266, 1937, pp. 4 and 5.

A somewhat similar tabulation presented by Paul Taylor gives 85.4 per cent of the value of products produced on 51.2 per cent of the farms. T. N. E. C. Hearings, Washington, 1940. Part 30, p. 17057. This is discussed also by Black, Allen, and Negaard, *The scale of agricultural production in the United States*, Quart. Jour. of Econ., May 1939, p. 354.

the pioneer economy such as scope for individual initiative and unstandardized ways of life and work at those levels above the clearly substandard.⁵

The aim as to amount of production is obviously to seek an adequate wholesome, well-balanced diet for the entire population (with due consideration for the place of exports and imports in such a program). Every nation recognizes the validity of this in wartime and accepts responsibility for finding means of distribution to bring it about. Is there any reason to abandon such a goal in peacetime when it should be easier to accomplish? Beyond the level of a plain adequate diet, refinements in quality, attractiveness, and palatability stand on all fours with luxuries of other sorts. They are not a problem of basic national policy.

How, then, shall these quantities be produced—on family farms, peasant farms, industrial farms, or all types?⁶ Here considerable difference of opinion appears. We have in the past, through the Homestead Act, given a marked impetus to the creation of family-size farms. These have been larger than most European peasant farms and in general have made possible more efficient use of labor than is usual on European peasant farms. The homestead plan has resulted in a somewhat unique American pattern of farm life, particularly for the Middle West. As a whole, it has worked well. The unit chosen fitted rather well the capacities of the farm machines developed during the Nineteenth Century. It gave scope for the executive abilities of able farm operators. Incomes were considered low but probably surpassed by a wide margin those of any comparable group of working farmers in the history of the world. Relatively

⁵ C. L. Holmes has well stated this view in his paper on The management of land resources, Proceedings of the 7th International Management Congress, p. 5, Washington, 1938.

"Society has an interest and responsibility in how land is used even though that land is privately owned. It is unthinkable that in meeting this responsibility the government should evolve a system which would prevent the use of private initiative. It then seems necessary in developing a national economic policy to seek a favorable combination of private initiative and public management. If this combination can be made successfully, society will not lose the productive value of private initiative, and it may secure a degree of group control which will insure a large number of the important objectives for the agricultural class and for the nation as a whole."

⁶ The term "peasant farms" is used here in the sense most commonly accorded it by the lay American. It implies a unit too small for effective use of modern farm machinery even when the labor force consists mainly of the farm family. By common American usage the term implies much use of hand labor supplied by all members of the farm family, including women and children, a low standard of living, and an intimate and rather stable relation to the land. This usage is, of course, different from that connoted by the term "peasant farms" in some European countries.

good homes were attainable, and training through the college level was within the reach of many farm people. This was by no means a stabilized peasant class intimately tied to the land. Out of it have come vast numbers of business and professional men and women and many skilled workers of various kinds. These farms continue to be not only a reasonably efficient source of commercial farm products but a contributor of surplus population, though on a much smaller scale than formerly. As a whole, this type of farm life has merited and gained the approval of the nation to an extent that its continuance is generally desired.

Certain adverse elements are operating to modify the place these farms have held in the national economy. One is that most of them are of less than optimum size for the use of the most modern machinery; a second, that the large investments now required for farm ownership have caused an increase in tenancy and a reduction in security which in some measure at least are operating against the retention on the farm of the ablest of the young people produced. There has been some tendency also for more recent immigrants with lower standards of living to outbid offspring of the older stock in the purchase of the land. This does not destroy the family farm pattern but does, in some areas, have a significant effect on the racial stock occupying the lands.

The pattern of farm life just described is characteristic for the Middle West, for the Northeast, for much of the Great Plains area, and in modified form, for some of the Mountain states. Striking variations from it exist in the South, on the Pacific Coast, and in scattered areas throughout the nation. The type has considerable powers of survival and can probably be maintained without the introduction of markedly unorthodox procedures. Its continuance on an owner-operator basis is coming to depend upon inheritance more than in the past. Investments required are too large for widespread climbing of the agricultural ladder. Transfer by inheritance has some tendency to result in excessive subdivision, inefficient farms, and substandard incomes. This tendency is particularly noticeable in Utah where population pressure on the land is intense, mortgage delinquency widespread, and incomes very low. Through the Middle West there appears to be little immediate danger on this score, and there has been since 1900 some tendency for farm sizes to increase as an adjustment to requirements for effective use of modern machinery.

Much more serious is the problem of tenant operation with short tenure, destructive forms of leasing, and undesirable social conditions. Here the remedy seems fairly clear. Stability of tenure, compensation for improvements, and other constructive provisions can be injected by legislative action. The long experience of England in this realm gives ample support for that view. Under present-day conditions, general owner-operator status is incompatible with well-equipped, adequate-sized units. Both security of tenure and constructive farming can be attained without it, and I see little warrant for the view that farm operation on an efficient and satisfying scale should be confined to those who have inherited, those who have attained means in other ways, and those who acquire nominal ownership by assuming heavy mortgage obligations. Often this latter step is taken because there is available no other means for achieving stability of tenure in commercial farming.⁷ Heavy indebtedness is likely to be accompanied by both insecurity and a low standard of living. Legislative stabilization of tenant farming, in family farm areas, would not require subsidy, could reach the problem of the whole group of tenant farmers much more quickly than a tenant-purchase plan, would be a more permanent solution, and would tend to discourage short-term speculative ownership of lands by institutions and individuals.

Maintenance of the family-size commercial farm capable of providing a high standard of living is not a means of providing large new increments of population to offset deficits in urban areas. While reproduction rates in the rural areas of the dominantly family farm states are higher than for the corresponding urban areas, their birth rates are declining. This tendency probably will continue for some time to come.⁸ Rising living standards, the Americanization of immigrant groups, and the transfer of property by inheritance

⁷ Heavy obligations are, of course, also assumed for other reasons such as an expectation of speculative gains.

⁸ The following changes in net reproduction rates for typical Middle Western states illustrate the kind of change that is occurring:

	1930			1940		
	Urban	Rural— farm	Rural— nonfarm	Urban	Rural— farm	Rural— nonfarm
Ohio	92	142	137	78	124	118
Illinois	83	139	118	73	120	111
Indiana	96	139	129	86	115	119
Iowa	91	147	111	90	128	108

Department of Commerce Bureau of the Census. Sixteenth Census of the United States, 1940. Series P-5a.

seem likely to bring us a reproduction pattern more like that of rural southern France or of the Scandinavian countries than like that of American farms during the past century. If large-scale population increments are desirable, they will have to be found mainly in other types of agriculture or in general nation-wide positive stimuli to reproduction.

Where, then, do the large industrialized farms, the specialty farms, and the plantation fit into a well-balanced scheme of agricultural organization? Here the conditions are more clearly pathological and the proposed remedies more drastic. Let us examine first the industrial unit perhaps best typified by the larger ranches of California, the sugar plantations of Louisiana, and some of the large grain and cotton farms of the Plains area.⁹ Why do they exist?¹⁰ What are their advantages and their disadvantages? Are they growing at the expense of the small unit?

The defects are plain. Few of these units provide a type of farm life that can be considered satisfactory. Employment is precarious; incomes are low; settled homes and wholesome community life for workers are for the most part unattainable. Relief costs are high, and educational opportunities for children are inadequate. The advantages lie mainly in the use of larger-scale equipment; more standardization of techniques and products; more extensive vertical integration of such functions as supply purchase, crop production and packaging and selling; and more chance for the use of certain specialized and relatively scarce abilities in management.

In fruit and vegetable production, the industrial pattern with the use of gang labor employed on a seasonal and often a piece-work

⁹ The term "large-scale farming" is used somewhat indiscriminately by various writers. Even where definitions are given, they differ materially. For example, Jennings defines large-scale farms (with some exceptions) as those having a value of products amounting to \$30,000 or more (Census Monograph: Large-scale farming in the United States, Washington, 1933, p. 2). Mumford, on the other hand, defines large-scale farms as those having under one closely controlled and supervised management a size of business five to eight times as large as the typical farm business in the same locality producing the same kinds of products (U.S.D.A. Bureau of Agricultural Economics: Large-scale farming in the United States, p. 2, Washington, 1933).

The term "industrialized farming" as used here signifies a particular relationship between management and labor rather than a specific size of operations. It implies considerable use of wage labor working in gangs under conditions approximating those found in urban industries.

¹⁰ The complex influences which have brought about the southern plantation system are interestingly discussed by Edgar T. Thompson in his essay on The natural history of agricultural labor in the South. American Studies in Honor of W. K. Boyd, Duke University Press, 1940, pp. 110-174.

basis extends down to relatively small units. For some other types of farming these characteristics are more likely to be limited to the relatively large farms. Our knowledge of the cost reductions resulting from larger scales of operation is relatively scant. There is little indication, however, that the cost of field operations, per unit of product, continues to decline as the size of unit is enlarged beyond a minimum required for reasonably efficient operation. With a few exceptions, the equipment used is very similar on large and on medium-sized units.¹¹ Those advantages of large-scale operation which relate to marketing, financing, and packing could, of course, be performed cooperatively, and in many cases they are.

There seems little argument for support of the extremely large-scale farm on grounds of its social contribution. Its justification, if any, lies almost wholly in its supposedly greater physical efficiency. Most of these large-scale farms, however, do not now carry all of their social costs. Like most seasonal industries, they use labor when it is wanted and leave its support in other periods to be provided at public expense.

Possible approaches to this problem appear to be three in number:¹²

1. To require the industry to maintain its labor through the year at a living wage. This would curtail very sharply the amount of product, and society would bear the cost in higher prices and

¹¹ Studies carried on by the Montana Agricultural Experiment Station with wheat, a very extensive crop, showed little, if any, gain in lowered costs per unit of product when size of farm unit exceeded 800 acres; see, for example, Farm organization as affected by mechanization, Montana Agr. Exp. Sta. Bul. 278, 1933. Studies of limited numbers of sugar-cane farms in Louisiana by Ballinger show moderate but significantly lower costs per ton for smaller farms averaging 717 acres per farm as compared to farms of 1,000 to 2,000 acres and those of 2,000 acres and over. See Financial results of the operation of large sugar cane farms in Louisiana, 1937 and 1938, Louisiana Bul. 315, 1940, p. 12.

Charles Abrams comments, "Concentration of ownership never took hold in landed property, though it did in almost every other important sector. Neither the wealthy of the nineteenth century nor the giant corporations of the twentieth ever became primarily interested in land," *Revolution in land*, Harper, 1939, p. 5.

For the extremely large cotton and grain units of the western San Joaquin Valley in California, there appear to be marked technical advantages and very low costs per unit of product. The type of organization here in use results, however, in very undesirable social conditions, and even some of the operators themselves regard it as a transition type which is likely in the not distant future to be replaced by something different. At present, small-scale operations are virtually impossible in this area because water facilities require large investments and have not thus far come under cooperative or public control.

¹² For lack of space the widely held view that subdivision into small units is a way out is not presented as a separate approach. Some of the limitations to this as a solution are, however, discussed or implied in this or other sections of the paper.

smaller consumption. This appears undesirable since the things many of these farms produce are the very products which dieticians hold should be consumed in larger quantity.

2. Continue to make heavy contributions in relief to offset short-period employment, creating under public administration as wholesome a situation as may be possible. This leaves much to be desired in terms of conditions of life, morale of the workers, and cost.

3. Undertake interfarm organization of employment and living facilities plus local industry and public works developed with a view to stabilizing employment and decasualizing labor. This last approach involves much the largest measure of planning and directive effort. It is the only one, however, that offers much promise of significant improvement. Mere subdivision of lands can accomplish little in this type of agriculture since casual labor is required in about proportional amounts down to farm sizes too small for adequate family support. The fruit or truck farm actually small enough to be operated by the farm family throughout the year would require large wastage of family labor in off seasons unless off-the-farm work can be made available at those times. Within the possibilities of the industry, incentives created by negative action to force longer-term employment of fewer workers should, of course, be used. In the main, however, this is a problem for positive directive action on a relatively large scale. Inputs of funds during recent years have exerted almost no influence in changing the basic pattern which has existed.

The cooperative farm using large-scale machinery has often been proposed as a solution. This, however, cannot overcome the basic unbalance of the seasonal pattern of labor need in highly specialized areas. Under conditions such as those of the San Joaquin Valley, even cooperative farms employ labor at peak periods and drop it after the peak demand is passed.

In cotton and sugar cane the problem is similar, though here the opportunities for diversified production and hence for a family-farm organization are probably better. Here again, however, the current methods of putting in public funds are doing little to modify the basic pattern or to introduce important corrective measures except in conservation practices.

Two important groups remain to be considered: (1) the part-time farms, and (2) the small relatively noncommercial farms.

The first of these presents little difficulty in terms of basic policy. The problem is mainly that of implementation. Highways and the automobile have made possible a large growth in suburban residence. Great numbers of workers now find it practical and desirable to reach out to home sites of lower value where their real incomes can be increased by supplemental production, which often includes some added cash income. Shorter hours are giving them more time for such activities, and the wider availability of the conveniences of the city is making possible the combining of many of the advantages of city and country life. The gains here are to this specific group rather than to the general public. The amount of production is not important commercially. It enlarges consumption for these families, provides some measure of alternative real income and security in times of unemployment, and is likely to increase stability of residence and community life. Part-time farming is not an easy life and will not appeal to all workers. Nevertheless, sound policy would seem to call for facilitating it at least by the following measures:

1. Suitable credit facilities.
2. Provision of more adequate direct high-speed highways from work centers to suburban areas.
3. Such amount of decentralization of industry as may be practical.
4. Job security adequate to warrant such undertakings on the part of the workers.
5. Unemployment and relief benefits which will not require surrender of suburban homes in order that aid may be secured. Some cash income is necessary for family maintenance on such units. In times of extensive unemployment families established on suburban part-time farms can almost certainly be maintained better and more cheaply by enabling them to retain these facilities than by forcing them into pauper status before relief can be made available.
6. With the eventual development of adequate old-age contributions, superannuated workers previously established on such farms may avoid a complete break in their customary ways of life, contribute to their own support, and maintain themselves comfortably without extremely high old-age contributions by the public. Considerable groups of this kind on fixed incomes constitute also a stabilizing influence in the flow of purchasing power.

The very small farm unit not coupled with off-the-farm work or income presents a different problem and is a very dubious social asset under modern conditions. The localities consisting generally of small relatively self-sufficient farms can be marked out as persistent problem areas whether in the southern Appalachians, the hill sections of Arkansas, the Lake States, the foothills of California, or the crowded farm lands of India, China, Ireland, and the Balkan states. They are usually, to be sure, areas of high birth rate and population surplus. We may well question, however, if this is really an advantage. Living standards are extremely low; health, education, and social facilities are substandard.¹³ Here a constructive approach would seem to indicate facilitating outflow by special occupational training, aid in job placement, bringing in of light industries, combining of farms into effective units, and in many cases, conversion of submarginal lands to more extensive public uses. If such efforts are successful, they should lead to higher standards of living and would almost certainly result in lower birth rates. Mere amount of farm life, regardless of its quality, does not constitute an end in itself.

The farm too small for efficient production, if unassociated with off-the-farm work opportunities or income, is a form of agriculture to be deplored and discouraged. In some cases it is an archaic residue. In others, as in parts of California, it has come about from exploitative subdivision and supersalesmanship. For one type of operator this kind of unit can be a satisfactory solution, namely, the elderly family with some modest income from other sources, such as investments or old-age compensation, provided the farm is suitably located. A more conscious planning of such facilities for semiretired farmers and over-age industrial workers might well be a part of a well-planned social pattern. For this purpose stabilized leasing arrangements could be provided as well as purchase opportunities. Obviously this would not mean whole communities or

¹³ India shows an extreme form of this tendency. Darling comments in his study of the Punjab peasant, "Had India been able to keep her population in check she would not have been poor. . . . The root cause of India's poverty (lies in the fact that) it has long been the custom to follow the first impulse of nature and marry as near the age of puberty as possible. The awe-inspiring result is the addition of over 100 millions to the population in fifty years." (Malcolm L. Darling, *The Punjab peasant, in prosperity and debt*, Oxford Univ. Press, 1925, p. 287.) The opposite tendency for a population to decay through rates of reproduction inadequate for its maintenance also presents a problem. It seems evident, however, that even in the United States, rural areas of high birth rate and heavy pressure on land resources tend to create and intensify a vicious circle of low living standards, inadequate education, early marriage, and excessive reproduction.

areas of subsistence-type farms, and such farms would not be a source of new population increments.

We have left for consideration the cropper and the farm wage worker. Time will not permit adequate discussion of these. Their great needs are for job security, more continuous work, better incomes, and better housing. I shall leave the cropper problem for consideration by others better qualified than I, and shall touch only briefly on the problems of the farm wage worker.¹⁴ His lot cannot be much improved so long as agriculture remains a residual claimant on labor in good times and a dumping ground for the desperate in bad times. It is time for constructive planning that will provide, for the necessary number of farm wage workers, more stable relations with their specific employers and more continuity of employment. This could be done through better coordination of work on the farms and by planned provision of off-season industrial work and public works programs. Not all farm workers wish to settle down in a stabilized community relationship. For those who do, however, opportunity should be provided for preferential hiring within the community and for adequate and suitably located housing so planned as to give them a satisfying place in the life of the community.

To revert to our original problem of the place of agriculture in the social structure as a whole, I might summarize as follows:

1. There seems no reason for fostering a larger farm population. Where living standards are high, farm life is becoming more like urban life, and its reproduction pattern is similar. High birth rates in rural areas as in urban tend to be associated with substandard living conditions, and decline as living standards increase.¹⁵

¹⁴ Discussion of this problem is more fully developed by the author in an article, *Economic aspects of remedial measures designed to meet the problems of displaced farm laborers*, *Rural Sociology* 5, 2, June 1940. Also in an earlier article, *The problem of stabilizing the migrant farm laborer of California*, *Rural Sociology* 3, 2, June 1938.

¹⁵ Population shifts either to or from agriculture will have to be on a very large scale to affect the situation significantly. The possibility of relieving population pressure in rural areas by a cityward shift seems in fact more promising than the opposite one of absorbing in agriculture great numbers of urban people in periods of extensive unemployment.

In the introduction to the symposium on *The limits of land settlement* (Council on Foreign Relations, New York, 1937, p. 1), Isaiah Bowman comments as follows: "One conclusion stands out above the rest . . . : new land will accommodate too slow and small a stream of population to be of real social importance to the countries of origin. In our present nationalized world, in which the best lands have been occupied, . . . migration is no answer to economic and social strain induced by so-called overpopulation." His remarks pertain to international relationships. They could, however, be applied with almost equal pertinence to the domestic situation.

2. There exists no proof that farm life is inherently superior to urban life. Public policy should be directed, therefore, to maintaining in agriculture that number of people needed to supply by efficient methods the amount of commercial farm products needed to supply the nation's population.¹⁶

3. These products should be produced commercially on units of adequate size to attain approximately to maximum efficiency, all costs considered. For nearly all lines of agricultural production, efficiency does not increase markedly with large size except in packaging, processing, transporting, and selling. These advantages can be secured by cooperation or by separately controlled entrepreneurial effort.

4. For most types of farming the family-size commercial unit is adequate to attain a fair degree of efficiency. It may be expected and possibly should be encouraged to become somewhat larger as an adjustment to modern methods of production.

5. The extremely large farm, unless greatly modified, involves social disadvantages which may warrant breaking it down. Its supposed advantages in efficiency are for the most part undemonstrated and may consist largely in the fact that it is able to shift some of the real costs of operation onto the larger community.¹⁷

6. If the maintenance of population constitutes a national problem, this should be approached directly through aids to earlier marriage, public sharing of the expense of rearing children, and in similar ways. Public arrangements such as boy scout activities,

¹⁶ This statement does not take account of those who by preference seek residence on the land as part-time or self-sufficient farmers. As stated elsewhere in this paper, the fulfillment of these desires should be facilitated where practical. Whether their number is larger or smaller than at present is not, however, a major phase of national policy with respect to food supply, population maintenance, or prevention of unemployment. The attainment of a more satisfying way of life should be encouraged and facilitated by government in both rural and urban environments. As an outlet for the unemployed, agricultural opportunities are too limited in scale even to assimilate all of the surplus population of the rural areas.

¹⁷ Marx asserted dogmatically that the small operator and the peasant farm were doomed to displacement by "capitalist" types of agriculture. His conclusion was based upon an assumed parallelism between agriculture and manufacturing and upon consideration of tendencies that seemed general during the Nineteenth Century. This view, possibly arrived at independently, has been accepted rather uncritically by various present-day writers despite many indications which raise serious doubts about its validity. The conclusion is significantly challenged by D. Mitrany in his essay on Marx v. the peasant (in *London Essays in Economics: in Honor of Edwin Cannan*, George Routledge & Sons, London, 1927, pp. 319-376).

While Mitrany probably minimizes unduly the significance of mechanical developments in agriculture, his challenge to the Marxian view carries considerable conviction.

supervised play, and a broadened educational program are offsetting many of the defects which have existed in the urban environment for children. These can and probably will be extended.

If these points be granted, we come back to the main question. Is the public warranted in making heavy contributions to agriculture from the public treasury?

Current inputs of funds for agriculture are on grounds of provisions for improving production and thus presumably lowering costs and prices (funds for research and education); of payments for contributions to the public welfare (conservation payments); of justice to a handicapped group (parity payments). Others might be mentioned but these are the major items. Direct public subsidies of these kinds, except in research and education, have come since 1929. The amounts are large. It could be said with much truth, however, that industry for a much longer period has been the recipient of large indirect subsidies through tariffs, corporate structure, patent privileges, and monopolies; also, that many segments of organized labor, because of strategic placing, have been able to reap bounties not accessible to agriculture. These, to be sure, did not usually draw directly on the public treasury. The form is different but the substance the same. But this is beside the point of what we are considering here. The major divergence of opinion among agricultural leaders is not whether funds should be put into agriculture but what should be the nature of the program for which such funds are used.

Of the three main types of expenditure, the oldest is that consisting of contributions for research and education. Since agriculture is a highly competitive industry, I believe a strong case can be made to the effect that the public recaptures these outlays in the form of lower prices.¹⁸ Similar activities may well be expanded for other branches of the economy provided there can be assurance that gains in efficiency will be passed on to the public.

The second type, expenditures for conservation of natural resources, can be justified provided the funds are expended efficiently and constitute payments for values which accrue to society but

¹⁸ This argument was, in substance, developed in a challenging paper presented by E. G. Nourse before this Association in December 1926 (The outlook for agriculture, *JOUR. FARM ECON.*, January 1927). In the opinion of this writer and of several others, Dr. Nourse attributed a larger influence to these improvements than can be demonstrated. Nevertheless, his main thesis stands virtually unchallenged, and the developments since that time tend to bear out many aspects of this remarkably penetrating analysis.

which lie beyond the private self-interest of the farm entrepreneur. This assumes a conservation program that is not a means of generalized income adjustment but is rather one of buying conservation where the greatest returns can be secured for the outlay. This problem is discussed in another session so I shall not undertake to develop it.

We come now to the most controversial and difficult of the categories, namely, payments designed to offset handicaps for farm entrepreneurs in their relationships with other entrepreneurial groups and with organized industrial labor. This has been discussed widely and with vigor. It can only be touched on here. This stands on almost identical footing with the arguments for maintaining tariffs on industrial products. Much of the early discussion did, in fact, center around the proposition of making the tariff effective for agriculture. In my opinion this view gave inadequate weight to vast and fundamental changes occurring in the agricultural situation, particularly the great changes in world production and trade and the onward march of technological advance in farm production. Adjustments cannot be made quickly to large-scale changes of this kind by any major group. Our government has long recognized a public interest in the prevention of chaos and widespread hardship where large groups are suddenly and adversely affected. It has stepped in on an enormous scale to provide employment to displaced and unassimilated workers. In times past it has moved into prevent a breakdown in railroad transportation, in ocean transport, or in the banking structure. As emergency and palliative measures, these outlays have for the most part had the approval of thoughtful people. With the exception of tariff subsidies, we have generally frowned on them as continuing props to an industry or group. We have felt that it should sooner or later put its house in order and stand on its own feet.

Few who knew the situation felt that agriculture could by itself make the necessary adjustments to the conditions confronting it in the thirties. Now, however, we have the anomaly of continuing and even increased parity payments when farm prices in many lines are at or above parity; of a loan program designed to freeze stocks at a time when public policy and farm group self-interest would seem to dictate their release; and of procedures which clearly tend to inhibit desirable readjustments as between different lines of agricultural production.

It would seem to me a time for promulgating plans for real ad-

justment and a better agricultural life justifying this as a good investment from the standpoint of the public rather than as a handout wrung from the public treasury by a chronically underprivileged industry. Such a program should, of course, be accompanied by both positive and negative lines of action designed to remove conditions which place agriculture at a disadvantage in its relations with urban groups. We cannot, I believe, accept the defeatist view that agriculture shall be an institutional home for the underprivileged. We do not want to make of it a sociological Fort Knox in which to bury and immobilize human resources we are not wise enough to use in more significant and productive ways.¹⁹

To approach the problem in this way may mean a larger or a smaller input of public funds than we are now making. It would seek to better the public diet by all the mechanisms we now have and some we have not yet invented, but would not seek to retain in commercial production kinds or amounts of farm products not needed to that end. It would abandon assumptions of inherent rightness of price relationships of a past era. Both rates of technological progress and changes in needs for the product have varied markedly as between the different types of production and should be reflected in changing price relationships. Probably the greatest reductions in cost have occurred in cotton and wheat, the very products now bolstered by the largest and least justifiable subsidies.²⁰

Such an outlook assumes aggressive action in the nonfarm field to create incentives for a large-production, low-price program; to break down socially indefensible types of administered pricing; to modify exploitative tariffs, patents, and monopolistic structures, and some control of unwarrantedly restrictive and monopolistic labor policies.

Inputs for agriculture, as here proposed, do not assume an in-

¹⁹ Abrams summarizes this view in forceful, if possibly exaggerated, form when he says, "Millions of agricultural workers are obviously superfluous now; many millions more will shortly become so. Unless a permanent peasant class is to be created, satisfied with a standard of living far below that prevalent in the outer world, superfluous agricultural labor will have to be provided for in one way or another, and land grown submarginal will have to be returned to pasture and forest. Resettlement, in its present form, is a cumbersome and artificial procedure that has made little progress as yet. What has been done thus far in the way of reforestation suggests a child's attempt to bail out a lake with a toy pail." (*Revolution in land*, Harper & Brothers, New York, 1939, p. 46.)

²⁰ From 1909-13 to 1934-36 man-hours required to produce a bushel of wheat are estimated to have declined by more than half (.89 hr. to .41 hr., National Research Project. *Changes in technology and labor requirements in crop production*, wheat and oats, Philadelphia, 1939, p. 95). For cotton, the corresponding reduction is from 271 hours per bale to 218 (same series, *Cotton*, p. 103).

herent superiority of agriculture as an industry or of the rural way of life. They are to be justified, if at all, in the same way as inputs for social security, or for education, health, and housing, as a worthwhile investment for improving conditions in one of the major social groups while at the same time improving the efficiency of its contribution to the rest of society. Some of the improvements suggested could be brought about by legislation at comparatively little expense. Others would require considerable expenditure and more of positive planning than we have had heretofore except in wartime.

*Rescue Programs and Managed Agricultural Progress**

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I. Four Theses

ALTHOUGH both speakers who preceded me² ostensibly gave most of their time to a review of the past expansion of the fan of national agricultural programs and to an analytical estimate of the present situation, close study of their papers will show that both men kept the future well within the field of vision. I intend, for the most part, to conform to that model but to direct my remarks rather more toward a future projection and progression.

My earlier casual studies of American agricultural programs gave me four impressions. My work on war food problems during the last year has sharpened these impressions. Working with Dr. Benedict and Dr. Ezekiel has brought the sharpened impressions into a sort of perspective.³ Let me offer them as theses worthy of study by economists. These theses are:

(1) Endless variety and innumerable facets of change are associated with the origin of each program;

(2) A strongly rising storm of changes is associated with the increasing number of programs and with the aggregate effort expended in them;

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¹ I accepted the invitation to prepare this paper before I was employed, on temporary appointment, as Economic Adviser, Office of the Secretary, United States Department of Agriculture. In this paper I speak for myself only.

² Dr. Mordecai Ezekiel, United States Department of Agriculture, and Dr. M. R. Benedict, Giannini Foundation, University of California.

³ By arrangement, both men generously gave me drafts of their papers before I began writing mine. Here, just as at the meetings, I have assumed that readers will have read their papers first (pp. 463-496, *supra*).

(3) With a few notable exceptions, there is a strong implication in each program (and in what is said officially about it) that its object is to establish some status or redress some balance or revive some set of proportions thought of as *normal* or *fitting* or *fair*; and

(4) There is a strongly rising inclination among Department personnel and among other serious students of agricultural policy, to look upon change—and even accelerating rate of change—as normal and to seek an enduring *axis of growth* as a basis for agricultural planning.

I shall address my remarks to these four theses and shall give space emphasis to the fourth.

II. Programs and Associated Changes

Every policy and every program referred to by my predecessors is associated with antecedent changes in the economic situation of agriculture. Some of these were explosive. The Hoosac-Mills case and the droughts of 1934 and 1936 illustrate this. Some had long histories of stresses cumulating more rapidly than the responding adjustments under the existing policies and programs. For example, the slope of American annual cotton production is nearly zero in the two decades next preceding World War II. Meanwhile foreign production rose much faster than world consumption did.

Characteristically we did not even begin national, prelegislative debate until one or more primary economic changes and their repercussions had already done serious damage to some large group. In some instances in our memories, the very magnitude of the calamity seemed so to paralyze the federal government that the legislative responses were—even then—obviously too feeble to save the situation.⁴ On others, after long delay, the legislation bore all the marks of panicky enactment.⁵

Motivations and consequences: Even with the fine reviews just put before you, it may not be amiss to mention and exemplify one caution against rosy interpretation in retrospect. People who whine now about subsidizing farm families on subsistence farms (or non-optimum farms) boast of the progressive feat of land development

⁴ The act creating the Federal Farm Board and its aborted precursors of the twenties are of this sort.

⁵ For example, it is to be doubted that the first Triple-A law would have been invalidated had the processing tax been levied in a separate act. This view is suggested in the majority opinion and asserted in the minority opinion in the Hoosac-Mills case. By contrast, the economic planning implied in the act was carefully done.

by their pioneer ancestors under the homestead laws.⁶ To be sure, that particular feat was, and still is, important. But so, and for different reasons, were the distressing changes that motivated the homestead legislation. Long before modern medical care had made much headway in reducing death rates among the young, our rural populations in the older settlements were raising to maturity prodigious numbers of children per family. On top of that we admitted floods of immigrants seeking occupation as farmers. Relevant to the times, we had a genuine population pressure upon the earlier settled land.

That pressure drove swarms of the more venturesome farmers, young and old, away from neighbors, friends, and kinsmen. They preferred to face hostile Indians and winter blizzards on naked prairies. We have so glorified the epic feats of the bolder pioneer migrants and so far forgotten the unromantic distresses both of those who moved and of those who did not that many think of subsidizing farmers on subsistence and less-than-subsistence farms as New Deal novelties. To be sure, some of the new programs—say, those of the Farm Security Administration's farm labor camps—have proven unpopular with the earlier local residents but so were the Army campaigns unpopular with the Indians in the earlier depression relief episodes.

III. Rising Rates of Change

Changes in agriculture and programs to deal with them are not new. What is new is the steeply rising rate of change in agriculture. Within my generation the changes affecting agriculture exceed those of any earlier dozen generations. I am aware of the looseness of that statement, but it is as good as a thick book full of precise tables if, as between one table and another, the entries are incommensurable in human values.

Episodic changes: Within the last quarter century American agriculture made a panicky and distorted, but nevertheless enor-

⁶ Many phrasings in this paper depart from common practice in economic writings in that they suggest primary judgments and moral verdicts. The departure from my own earlier custom is made for expository, rather than censorial, reasons. The verdicts are not necessarily mine. I infer them from observing group responses to public discussions. Such judgments, because they influence the course of economic events, are as much primary economic facts as market prices are. An economist reporting his studies must fail to communicate if he merely lists them; for, just as moral judgments have influential magnitude only in intensity of feeling, so also they can be fully reported only by word usage that suggests position and movement on the scale of feelings.

mous, contribution to winning World War I. During the next fifteen years we disregarded the plain fact that an uncoordinated agriculture can expand but cannot quickly contract without cruelty to rural inhabitants. Before our later rescue job was done a second and more deadly world war was dumped on our doorstep. We adopted it. For change in national policy response to change in agricultural situation, it is impossible to match in earlier history the 1917 to 1941 interval.

At the outset of the great depression we had an industrial economy frightened by its own gross mistake of supposing that its post war expansion to rehabilitate Europe could survive the world wide wave of extreme nationalism. Great corporate pools, through control of supply and pay-rolls, were able to thrust much of the adverse results of their risk errors upon their employees and their customers. They reneged—and declined to take new risks of like magnitude. Farmers had not only the adverse risk event of losing foreign markets but also a heavy loss of domestic market by consequence of risk shifting in industry. The event proved that the amplitude of risk to farmers was far greater than they could bear.

Even aside from these episodes I could still make and maintain my bold remarks on the basis of changes on the farms alone. Crop by crop, item by item of product, the production per man hour of work done on the farm has grown amazingly. The contributions to this increase come in along the whole range of technology. Better fertilizers more widely used, better tillage, better drainage and erosion controls, better land use, development of regional specialization, improved water application in irrigation, improved tools and implements, labor and feed-saving motive power, better roads, improved insect and pest control, bettered animal sanitation, genetically improved plants and animals, bettered feeding practice—all these and others come in.

Over the long course this cumulative betterment of farm technology far outweighs the episodic influences in affecting the aggregate rate of change. But the rate of new applications in practice lags behind the rate at which our knowledge of agricultural technology is advancing.

That rate of cumulation of knowledge shows no sign of slowing down on any salient of scientific research or of inventive technology. On the contrary there is every evidence of speeding up. Progress on one front alone can make a prophet of me—the day by

day accumulating knowledge of plant and animal and human nutrition. And farming operations consist mainly of selective feeding of plants and animals.

I have not sketched this rising rate of learning and technological betterment in agriculture for the pleasure of hearing my voice in the choir of beatified progress worshippers. I have done it because that progress, unmanaged, has spread economic murder and human cruelty throughout our rural areas. I have done it because of the still greater cruelties in store for us, war or no war, unless we learn how to manage progress.

Visible progress: Technological betterments and the new knowledge that leads to them can be, and are, identified and itemized. The first step consequences of their person by person applications can be, and are, made concrete and clear. These first step expectations, for the moment, are all favorable. We separate these initial expectations verbally from all the other consequences under the sign of the blessed word progress. We condemn as enemies of progress those who propose to cling to a livelihood that progress threatens to destroy.

Obscure shifting: By contrast with the initial impact of lasting technological improvement, the appropriation of the resulting benefits remains in almost complete obscurity. The infiltration of innovations is widely distributed and sporadic in space and cumulative in time. The first repercussions differ as between time, place and circumstance and differ in ways impossible to measure quantitatively save on a few scales of valuation—and these scales are seldom strictly commensurable. Every one of these influences is smothered in the concurrent adjustments to other innovations and in the welter of impacts stemming from unique episodes.

There is no certainty that innovators will in fact benefit. The mortality rate among innovations is high: we call them "progress" while they last: "fads," if they fail. The farmers who bought the first farm tractors were losers by contrast with those who waited until there were better tractors and equipment suited to motor draft. Motorized delivery of milk cannot increase the number of customers. By longer inter-customer runs, motor trucks can and do increase the length of routes to serve the same community of customers. No longer constrained by the endurance of a horse, competition can drive unit delivery costs up—to the advantage of truck makers, dealers and service occupations and to the disadvantage of dairymen and their customers.

No one can trace out all such atomistic consequences over time. But even if one could, one cannot add up one more polo pony in the string owned by a motor manufacturer and one less quart of milk a month fed to each of a thousand children.

Resulting burden: Nevertheless one can be sure of some broad end-effects upon those engaged in agriculture—owner-operators, tenants, hired employees. Farm family birth rates remain higher than those in cities and farm productivity per man hour rises. But the upper tolerance limit of food ingestion does not budge; and even the proportions of food categories change but slowly. This closing trap ejects millions of farm-born people from their livelihood and holds the rest victims of their own progressiveness. Chronic depression in agriculture results.

When the rate of change of technological improvement was compounded with the backwash of lost war markets without a fully compensating acceleration in urban occupations, we got the distress of the 1920's. When the cities spewed their unemployed back over the farms we got the catastrophe of the early 1930's—we got soil destruction, market riots and defiance of civil authority in the mid-continent valleys; we got caravans of defeated but unconquerable farm families streaming westward; we got crime and bloody strikes when the Pacific Ocean flattened the heads of the moving columns.

IV. The Rescue Programs

Our giant new programs of the last decade are rescue programs. Whatever their economic operating formula, whatever the ostensible grounds of their promoters, whatever the official justifications, their nationally important *consequences* are the saving of *Soils and Men* for the production of *Food and Health by Farmers in a Changing World*.⁷ The Triple-A, the Triple-C and the Farm Credit Administration went to the rescue of those still on the land. The Farm Security Administration went to the rescue of those scraped off the land. The earlier marketing programs—export subsidy, marketing agreement, marketing quota, and “diversion”—went to the rescue of farmers subject to clogged market channels.

All these helped to rescue farm creditors—some directly and some as holders of beneficial interests in corporate creditors. All helped to rescue the mercantile and service occupations and the private,

⁷ This three-year sequence of titles for the yearbooks of the Department of Agriculture is accidental but the march of the subject matter in those volumes is not.

civic, social and religious institutions in the country town grid. By reversing the slope of farm tax delinquencies, the locally supported public services were rescued.⁸

Asserted schisms: I am acutely aware that it is not customary thus to assert like consequences of, say, Triple-A programs and Farm Security Administration programs. One of the most commonly asserted schisms in policy nowadays is verbally lodged as between the work of these two agencies. I believe that schism to be bogus.

I do not deny that real schisms in our agricultural policy exist. I only propose as a hypothesis, based on incomplete observation but worth investigating, that real schisms are few and are mostly trivial. Real schism exists if the end-results of one program, on balance, detract from, rather than add to, those of another.

A program consists solely of some set of financing and operating events distributed over time and impinging, in the first instance, on some set of persons. These make up a program but they are not the program's *consequences*. The consequences consist of a different set of events, namely, those end-results in the lives of people that are set in train, or are contributed to, by the primary events of the program. Contrasted on the basis of end-results the programs of these two agencies do, indeed, differ in degree with respect to each of many criteria. But my observation shows much that operates in a common direction and little that is in conflict. In the language of physiology, there are many economic muscles working but they are not working against one another in tetanic balance.

Spurious schisms: When one examines the controversial literature one finds the clue to the conflict. Issues are joined not on the basis of end-results but on the basis of opposed teleological aspirations of the disputants. Each may be aware of the benevolent (or malevolent) wishes of the other to play at being economic Deity but unaware of the same tendency in himself to be another kind of economic Deity. Even among the writers who intrude their own feelings least (my two predecessors being a notable pair) there is a tendency to say that one program emphasizes economic adjustment and another, human welfare. Such distinctions do not impress me deeply; for they are facts about the discussions, about the form of advocacy and opposition, rather than facts about the diversity in the end-results.

⁸ These are put forward as illustrative items rather than as a catalog of identifications.

To these spurious schisms that exist only in the words and in the minds of disputants, economists have contributed more than their share. Certainly agricultural economists have added a generous quota of library bookstack footage. Among them, in turn, the economists in the United States Department of Agriculture have built up an amazing word count. Their showing in this respect is less impressive than the cubic miles of letter files, of a few main types, built up by administrative and legislative understatesmen.

On their own claims to a hearing, economists can be held responsible, in discussing a particular program, for taking fully into account the circumstances of its adoption and all the major real consequences of its application. But economists who are genuine apostles of real progress do still mistake the verbalisms of promoters and defenders for the events of antecedence and the events of consequence. One hears attempts intellectually to dispose of parity price programs, for example, on this basis.

One may concede that the formal statutory definition of the parity ratios in question had no merit whatsoever save as a variable objective operator to be modified within the statutory authority by the judgment of administrators and that this merit attached to it only as a money-distributing formula. One may concede that parity prices, as a goal, were only promised perches for distressed or politically active farmers. One may concede that stubborn clinging to those roosts may fill the wind with farmers' feathers but will not stay the storm of technological progress that motivated their adoption.

I do concede that as goals or as a guide to goals of national agricultural policy in the economic orgasms of war they are mischievous. I venture to predict that before the war is over and after it is over these arbitrary ratios will have been thrust into the oubliette for intellectual antiquities along with the earlier notions of automatic equilibrium they supplanted. A technologically progressive economy subject to episodic shocks is *ecstatic* rather than static or systematically dynamic.

Rescue and progress: In my view of public opinion, the *consequences of the distributions*⁹ include a great deal of what people consider to be institutional progress. Some of the evidence of this institutional progress, in the form of participation by rural residents in the benefits resulting from technological progress, can be seen from

⁹ In "distributions," I mean to include loan policies, market operations, etc., for the support of prices as well as direct parity payments.

one end of the country to another through a car window. Dr. Ezekiel spoke of this in connection with the Farm Security Administration's work. The like consequences of the work of the Triple-A and the Triple-C are no less plain and no less important. In a word, institutional progress has been effected by programs whose designers, defenders, and administrators seemed, in words, to be concerned only with adjustment to a past market situation.

V. The Management of Institutional Progress

Before advancing to the notion of institutional progress, let me recapitulate. Farm-dwelling families and those engaged in the mercantile and service occupations in rural areas have been damaged by a maldistribution of the consequences of the farmers' own technological progress. The rescue programs did not have *as ostensible goals* the redistribution of benefits of future technological progress. At best they averted and compensated some of the worst damage done by earlier changes in technology. Only drastic and widespread distress could awaken a sluggish public conscience to reluctant action.

What of the future? Public conscience can again dominate if future changes bring distress once more. But public conscience can never be more than a harbor of refuge. Minimum standards tolerable by conscience cannot be counted on to move upward in pace with the giant strides of technology. Already the support of many of the programs has begun to turn on the skillful management of minority voting blocs.

The retention of these programs and the hand-to-mouth financing of them have already made the job of the Secretary of Agriculture the greatest economic and political juggling act in America. As an economic observer, I have alternately gasped in horror and crowed in glee at the feats of legerdemain of the most recent holders of that office and their troupes. They do sustain the dramatic illusion. This implies no disrespect but only misgivings about the supply of future Secretaries of Agriculture. We cannot forever go on piling up rescue program on rescue program.

I suggest that the means of avoiding that confusion have already made their appearance and that despite the ordeal of war we can continue to make headway. There are already some programs in action and others in process of experimental trial and still others in process of construction that are capable of growth without forced

feeding. They harness in tandem powerful incentives that operate on all people—incentives not to hold fast but to advance.

Institutional progress: All of these new programs fall within the policy field that I shall call the “management of institutional progress.” In using that term I know I run the risk of being charged with obscurantism. I shall not be guilty; for I shall give examples of its content. These examples exist as observable phenomena. As yet, however, we have not invented the language necessary to a systematic discussion of them. We still await the man who is to expound “the high theme of economic progress” reserved for the unwritten second volume of Marshall’s *Principles of Economics*.

Static risks: My first example is in the domain of risk bearing. Even a static or a slowly changing agriculture is notoriously exposed to episodic and erratic perils—seed viability, pests, plant and animal diseases, fire, weather, etc.,—that compound, farm by farm and year by year, in yields. The ancient stratification of food manufacture, transportation, storage, and trading organization can and does transmit much of the shocks of price change back to the farm level. There it lodges on farm families, farm employees and on those engaged in the rural service occupations.

The amplitude of fluctuation of the compound¹⁰ of these primary erratic risks alone would have made our typical farm mortgage intolerable long ago but for the long upward trend in farm land

¹⁰ The characteristic behavior of this compound seems to be little understood. Economists too often content themselves with the inadequate postulate that at a particular time and place price varies inversely with supply and directly with demand. Over time this variation system, by any objective test, does not generally prevail. Farm by farm over time it occurs only by accident. That is, a good yield on a particular farm often occurs in a year of high price; and a poor yield, in a year of low price. Farm sales, being a product of price and quantity, fluctuate through a wider *proportional* amplitude than either multiplier. Algebraically this can be shown thus: Let p , q , and s represent sale price, quantity sold, and sales value of a unit area crop on a particular farm in a base year; and let Δp , Δq , and Δs represent the changes during the next year for the same farm and unit area. The compound of relative fluctuation then becomes

$$\frac{p+\Delta p}{p} \cdot \frac{q+\Delta q}{q} = \frac{s+\Delta s}{s} \quad (1)$$

When Δp and Δq are both positive each of the factors in the left hand member is greater than unity—thus making the right hand ratio greater than either of its factors. Similarly if both Δp and Δq are negative, the right hand ratio is smaller than either of the left hand factors.

The smallness of farm enterprises and of farm reserves of working capital and the relatively large requirements of living and operating costs, coupled with this risk compound imply a high default rate and an unstable amortization rate.

values. The expectation of a general upward trend has long since vanished.

Technological risks: A technologically changing agriculture is subject to all the erratic risks and to an additional systematic or one-way risk. Only in recent decades has obsolescence been a major feature of agricultural risk to the individual, to the community, and to the nation. Now cotton growers, and the economies founded on cotton growing and fabrication, are staring obsolescence in the face. Leather has ceased to be a principal power belt material and is steadily losing out as a shoe sole material. The new synthetic yarns threaten wool—even as a winter clothing material. The optimum acreage—even the optimum space distribution of the land—for the single farm enterprise changes rapidly for every type of farm operation and every type of farm operator.

Two-party division: Until recently our whole system of agricultural risk bearing was obsolete. Save for the abolition of imprisonment for non-payment of debt, the immunities of debtors and the remedies of unpaid creditors went unchanged since the Middle Ages. Originally, the two-party system of credit risks effected a tolerable and useful distribution of the total credit risk. On long term debts we clung to the old-fashioned mortgage until disaster to creditors and debtors alike attended the general exercise of creditors' remedies. The moral is not that debtors and creditors failed but that a two-party division of credit risks of small debtors cannot bear the large added one-way risks of obsolescence.

Three-party division: Now, the general public has intervened as a third party in the risk bearing. In every economy the totality of risk and the totality of its incidence—however they may be distributed within the population—are borne by the whole public. Of even greater moment is the fact—in and out of agriculture—that the whole public has to bear all the consequences of *failure to take* particular risks. The consequences of *not taking* risks, evident in the phenomena of depressions, can be far worse than the wisely distributed adverse results of *taking* risks. Few realize that the whole public, given a workable system of risk distribution, can bear an aggregate of risks enormously greater than the maximum bearable sum of two-party risks—and bear it not only in security and comfort but with net positive advantage as against the results of not taking the added risks.¹¹

¹¹ Failure to take this into consideration is largely, though not wholly, at the root of fears about the expansion of our internal public debt.

Now, a part of the total credit risk is becoming segregated and publicly financed and funded. On the one side, the public is the debtor: and the private creditor holds instruments issued by, or guaranteed by, the public. On the other side the public is a creditor: the public, or a public corporation, lends to farmers on agreements that are subject to adjustment as to principal and as to timing and amount of debt service charges. It is no longer necessary to go through the silly, wholesale eviction of millions of farmers because neither they nor their creditors could forecast the farm by farm incidence of cumulative changes of risk.

On short term debts, the advent of the non-recourse loan as an adjunct of the Ever-Normal Granary has set a floor under the incidence of human damage wrought to growers by the bounty of their own harvests. Use of speculative markets as a means of hedging price change risks to farmers on crops not yet matured is now possible by way of an intervening public agency. We already have experience in farm by farm protection by crop insurance against the erratic occurrence of damage to growing crops. We have now a sort of war risk insurance in the form of guaranteed floors under the returns to growers who respond to the Nation's call to increase the production of those foods most needed in augmented totals to win the war. By public underwriting, by cutting off the lower tail of the otherwise possible price range, we have not only increased the incentive to produce but have assured the financial power of farmers to sustain the increased production asked for.

In all these we have made beginnings only; and these, even where substantial, are not yet well understood—not even in the public credit agencies. One finds covenants in the long term debt agreements that imply an expectation of resorting to the remedies of private creditors.¹² Before war needs supplied new uses, our corn stock under loans far outran the original plans for the Ever-Normal Granary—this, because we had provided workable means for financing farmers who had surpluses of feeds over feeding needs but

¹² This failure to understand often takes the form of complaints about an unfair or iniquitous competition with private creditors—as though the effect were one of supplanting. These critics fail to see that for every dollar loaned to private debtors there is also a dollar borrowed (by the agency or by the Treasury) from private creditors. They fail to see that private creditors get what they want, namely, a secure (*rentier*) type of instrument; and that private borrowers get what they want, namely, an equity capital type of obligation; and that the aggregate of these *private* borrowings and lendings can be greater than the safe aggregate of two-party private financing.

had not provided workable means of financing and supplying farmers who had feed grain deficits.¹³

The importance of our beginnings lies not in their magnitude nor in the services thus far rendered, but in their capacity for growth and in the systems of incentives to change enlisted. These incentives grow with the changes of risk as our economic prospects unfold. If managed by skilled men of good will, the public agencies, as risk-bearing middlemen, can accomodate their operations to change. This, because they are protected from an exclusively one-way pressure. The public as debtor offers the greatest possible security to the private creditor. The public as creditor is not impelled to make a migrant or an indigent of an efficient but unlucky operator. The private farm debtor is not impelled to damage his person and his family to keep an impossible promise. All who eat food and wear clothes are the gainers by having farmers continue to operate farms on which they have useful experience.

Market operations: The second great example is in the field of consumer market operations. Here, two beginnings have been made. The public again is an intervenor. We had, simultaneously, huge numbers of families on farms, in towns, and in cities so badly underfed that irreparable damage to their persons was in prospect. Of the very foods most needed to make the diets of these people adequate, we had great *shortages*, but even these short supplies moved so slowly over kitchen thresholds that we had clogged markets. We spoke of surpluses—meaning only slow motion shortages.

The earlier rescue programs, in some of these foods had taken the form of "diversion programs."¹⁴ Later, we began using funds to pull food *through* the channels of trade—instead of just *out of them*. Direct distribution, school lunch programs, nickel milk, penny-a-

¹³ Some releases at a "loss" have been made recently. Systematic ways of utilizing loan stocks, not locally needed, to increase and sustain animal feeding programs for war supplies are being devised for consideration. It may be that these will point out the connection between a National Ever-Normal Granary and a farm by farm ever normal feeding program. If so, the curse of the hog cycle and the beef cycle may be exorcised and with them much of the farm costs of inadequately used feeding facilities. It is necessarily more expensive, in the long run, to feed out a fluctuating number of hogs per year than to feed a like aggregate at a uniform rate per year.

¹⁴ It will take a long time to live some of these down. By keeping part of the supply off the market, prices and farm incomes were supported but at the human expense of feeding more people worse. At the other end, we were spending money in huge amounts for wages on monument building—monuments that sheltered few and clad and fed none.

glass milk, subsidizing the movement of fruit into distant low consumption areas, and the Food Stamp Plan, are now all well known although, in the aggregate, they are small by contrast with the rescue programs.

From the outset, these programs—though less vigorously pushed by political blocs and by the Department than the concurrent rescue programs—were well received. People said they “made sense.” This was said by the same people who can still get purple in the face about the little pigs. It became evident that there were powerful incentives to growth widely distributed through the public and nearly all pulling in the same direction. The farmer’s incentive to produce for sale, the carriers’ to haul; the dealers’ to handle; the bankers’, to have solvent merchant debtors; the housewives’, to set a better table; the parents’, to give their children healthy growth—all are clear and all pull in the same direction. So far, these programs have been trouble shooting switch engines. They can become main-line locomotives on regular run.

Nutritional goals: The second beginning in this same line is recent and little known. The committee on Nutrition of the National Research Council brought in its findings last May on the annual per capita ingredients necessary to a sound national diet. Quickly thereafter a committee in the Department of Agriculture translated this finding into terms of farm products required. As a preliminary to its first formulation of production goals for 1942, these long range nutritional goals were laid before the Department.¹⁵ It is to be noted that not even the most extravagant hopes for bettering our position as an arsenal of food contemplate so great an increase in productive effort—of man power and land—as that which would be required to feed all our own population well.

There is a growing view that national nutrition and the desire to be well fed, can furnish the main ground for our future national agricultural policy. A policy addressed to making an adequate diet actually available to all would provide an incentive to assist in every household.

There is no necessary upper limit to the development of such a policy. It is one that can keep pace indefinitely with technological change. True, the human stomach will require little or no more in food energy values, but the productive effort required to provide

¹⁵ In the form of first approximation work-sheets only. Revised and extended estimates are now in process.

the varietal distribution requisite to maximum health and growth and requisite to the fun of eating¹⁶ is not thus bounded. There is scant room for informed doubt that the added productivity of a population all of whom are well fed all the time may far exceed the added cost of feeding everyone well.

The kind of expansion in finance and in operations just sketched is no dream—especially in the early throes of a great war. The beginnings are facts of experience. The results of those beginnings are indubitable. The areas covered by the beginnings are tiny by contrast with the extent of like opportunity. Analogous expansions elsewhere in our national economy, all attendant upon public underwriting and operating, have already occurred.

I cite as example, the economy of education. We make a huge annual public outlay on schools at all levels. Part of that is dedicated to scientific and technological training. The fruits of this portion alone have augmented our producing power by amounts vastly exceeding the whole educational tax bill. Moreover, the complimentary education provided by wholly private educational institutions, measured in terms of its effectiveness, is today far greater than it could have become in the absence of the public “intrusion” and the “regimentation” of compulsory school attendance.

A second example is afforded by our medical service economy. Despite the perpetual complaint that the medical profession is overcrowded, the evidence of every objective study, however made, is that the “overcrowding” is economically *least* where the public “intrusion”—through sanitary and public health services and the provision of medical school, clinical services, hospital facilities, etc.—is greatest. It is in these most medically enlightened communities that we find the highest ratios of private practitioners (physicians, dentists, nurses) to total population. There also we find the largest average and best distributed incomes of practitioners.

A third example of intervention, both financial and operating, is road building and maintenance. No one can doubt that private industry and finance—in the automotive industry and its auxiliary

¹⁶ The recent crop of writings and speechmaking on nutrition is heavily weighted with a treatment of food as medicine—preventative or curative. But the fun of eating is not to be ignored. Diets do improve with freedom to spend money for food. (See the detailed exhibits in *Diets of families of employed wage earners and clerical workers in cities*, United States Department of Agriculture Circular No. 507, January 1939, by Hazel K. Stiebeling and Esther F. Phipard.)

occupations—have greatly expanded by contrast with any growth reasonable to expect had we left hard surface road building to private toll road companies.

Pot-bound farmers: The later financial and operating programs in agriculture may well permit expansions like those in the educational, medical, and automotive economies. My own diagnosis of the major ill of agriculture is that by reason of its own technological progressiveness it became institutionally pot-bound. The rescue programs effected a precarious survival by a combination of pruning and pecuniary medicine. By cracking the pot of restraining risk and by opening the inward passage across kitchen thresholds, we have started a resumption of growth. But the job of designing institutions fit for a progressive agriculture is barely begun. It is a job bigger and worthier than most of us work at.

In the development I expect private enterprise to play an increasingly great role in those domains in which it has always been a willing giant—the production of commodities and the provision of low risk funds. I also expect public intervention to increase but only in those realms in which private enterprise has always made a sorry showing—the person by person distribution of the proceeds of production and the assumption and distribution of risk.

Farmers can become the fine flower of private enterprise—but only if they can be freed from destruction by perils they cannot control individually and only if they can be rewarded adequately for skilled work and wise use of working capital. If we can learn so to manage institutional progress as to make farming a paying private enterprise, we city people shall need to concern ourselves little about farming as a way of life. Given the opportunity to earn a good living, farmers will live as good a life as we will.

DISCUSSION BY T. W. SCHULTZ

Iowa State College

First, let me recall that the general theme of these papers is "The Schism in Agricultural Policy." May I explore with you what these three papers have contributed to this issue.

Mr. Ezekiel in classifying and describing the programs of the Department of Agriculture employed the dichotomy (1) economic adjustments, and (2) human welfare programs. He stated that economic adjustment programs came first, namely, Federal Farm Board, Agricultural Adjustment Administration, and other federal agencies, in which group he included also the state and county planning program. Subsequently came the human

welfare phase: Rural Resettlement Administration, the soil conservation, emphasis on the family-size farm, better diets, and training for farm youth. Farm labor, however, has been in the main outside of the pale of positive action.

Does Mr. Ezekiel's dichotomy point to schism in agricultural policy? Not at all. Nor does Mr. Ezekiel infer that a schism has developed. Why then does he use this classification for cataloging recent agricultural programs? As I will show, the classification, while it is popular, is exceedingly misleading for purposes of economic analysis.

Economic adjustments, namely the best use of agricultural resources, certainly has a positive contribution to make to welfare. Accordingly, to the extent that Agricultural Adjustment Administration assists farmers to make a better use of their resources this year, it most assuredly also contributes to the welfare both of farmers and of society as a whole. Granted that many of the economic adjustments required in agriculture may lower the income of certain farm people. This relationship between income and resources allocation does not justify the type of classification which Mr. Ezekiel has employed. Mr. Ezekiel's approach invites the resentment of those sponsoring and administering the action programs of agriculture of the economic adjustment type because his classification infers that their accomplishments do not contribute to human welfare. And conversely, many of the programs which Mr. Ezekiel lists under "human welfare" contribute to a better allocation of the productive resources in agriculture. Accordingly, they also belong in the first dichotomy.

In the popular mind there is a necessary conflict between programs which are labeled loosely as public welfare and as economic adjustment. It is, therefore, doubly important that we help clarify the issues involved instead of taking over the confusing, loose, concepts which are popular in lay discussion.

For purposes of economic analysis a much more rigorous classification is necessary. I suggest the one which I outlined in the opening section of my paper at New Orleans last year, in which I classified the problems confronting agriculture of economic import, (1) the problem of resource allocation, and (2) the problem of personal income distribution. I shall not review the criteria and mode of analysis appropriate to each for I did that in some detail a year ago.¹

Because in practice there is considerable conflict of interest, it is to be regretted that Mr. Ezekiel has not out of his rich experience outlined the nature of these conflicts within agriculture and some of the alternative ways in which they may be resolved. Too much of our discussion about resource allocation and income distribution involves verbal differences. It needs to be related in economic analysis, to the function of the various pressure groups, what it is that such pressure groups are striving for, and what are the possibilities of getting them to follow a more rational course of action.

¹ Economic effects of agricultural programs by T. W. Schultz before the American Economic Association, New Orleans, December 1940. Vol. XXX, No. 5, February 1941.

Professor Benedict starts his paper by resurrecting the two old views: (1) farming as a way of life, (2) farming as an entrepreneurial business. Between these two he finds a real schism, at least this is the inference of the early sections of his paper.

There is in fact, however, no schism. The issue is wholly verbal because monetary return from the business of farming is obviously only an intermediate end. In farming the cash income is surely only a means to other ultimate ends in consumption and ways in which farm life is conducted. This old issue, a professional feud between rural sociologists and agricultural economists, is basically without content. If I read Mr. Benedict's paper right, he concludes as much, since he does not return to this issue in the more substantial parts of his paper.

Mr. Benedict's verdict in favor of the family type farm versus the factory type should be noted. This is an important point. It means that the broad socio-political end which American agriculture presumably is striving to attain, namely that of maintaining and strengthening *family type farm*, is an end which permits society on the production side to use its resources most efficiently. It should be pointed out, however, that the productive accomplishments of American farmers is such that we might well afford under normal peace time conditions, at least, to give up some productive efficiency if necessary in order to attain the end, the family type farm. Mr. Benedict's analysis indicates this will not be necessary because the production efficiency of the family type farm exceeds that of other types.

Mr. Canning reviews the development of farm programs under four headings. On the first two he has touched by sketching programs and associated change and the rising rate of change.

His section dealing with rescue programs carries with it a good deal of substance for thought in obtaining perspective with reference to recent history in this field.

Canning's major contribution comes under the heading, "Management of Institutional Progress." In this he explores two exceedingly pertinent general areas, namely, the problem of risk and uncertainty bearing. Here the main issue presumably is reallocation of the incidence of economic risk. Mr. Canning does not indicate, as he might well have, that many of the risks which in the past have impinged and have been borne by individual farmers may be consolidated and converted into a form more easily handled, some of them actually disappearing and others borne at less cost to society than has been the case up to this time.

The second broad area is the economic effect of direct distribution of part of the social product in the form of better diets, education for farm youth, and in other forms. In both of these Mr. Canning is touching upon very significant problems worthy of economic analysis which will lead to a better understanding of the nature of the economic problems which confront modern agriculture.

Finally, it must be said that in these three papers there has been in a sense an avoidance of the major issue, namely, the schism in agricultural policy. For some reason or other the problem formulated in the general theme of the program has not received direct attention. Nor can it be said

that such schisms do not exist. In current price programs the issue of whether inflation is to be checked or is to be allowed to run its course is certainly of major import in the struggle now taking place within agriculture. The problem of shifting benefit payments from claims to land to positive performance is also of major import. Among the pressure groups there is deep conflict with regard to broadening the distribution of food products, and likewise as to whether or not federal programs should assist the family type farm in the low income brackets in agriculture. These and other important areas in which there is schism have been conveniently passed by in these three papers.

DISCUSSION BY A. B. WOLFE

Ohio State University

We are all interested in "welfare," but that does not get us very far in the solution of any specific problem of economic policy. Welfare is a general end. *Whose* welfare is a question of more specific end. Since the welfares of different social groups may conflict, or the welfare of one group be furthered at the expense of all other groups, it would be well for us to analyze these conflicting ends.

It is generally agreed that the American farm problem is the result of deep-seated economic unbalance, speeded by the first World War, but bound to have come sooner or later from technological change and from the development of competing agriculture in other countries. Everyone knows that the problem cannot be really solved until world peace is finally established and world trade and international division of labor restored to some sort of rational balance. Meanwhile, it seems to me, there is too much, or at least a too exclusive, emphasis on "rescue programs," as Professor Canning calls them, to the neglect of the fundamental forces and principles which must condition a reasonably durable solution. Meanwhile, the problem is thought of primarily in terms of distribution rather than production; hence nearly all the alleviating remedies adopted or suggested are based on the assumption that the farmer is not getting his just share of the national dividend.

The moment we enter the field of distributive justice, we enter a realm in which feeling, sentiment, and value-judgments (more or less supported by custom) are our only guides. So far as I know—and peace be unto the marginal productivity theorists—there is no known objective and scientific criterion of justice in distribution. I know of no objective way of determining how many dollars a farmer should get for a bushel of wheat compared with what a professor should get, let us say, for a lecture on the social effects of liquidity preference.

The farm problem is an intricate complex of problems. That is obvious from the papers read here today. It involves technological, economic, social, and even political elements. It varies from region to region, from prosperity to depression, from war to peace. It is the problem of the farm owner, the tenant, and the hired man. It is also the problem of the farm woman, though no one here has had the presence of mind to mention her.

Basically, it is a problem in production, as well as a problem in the distribution of income and opportunity. Underneath the details of the three papers just read, it seems to me, the fundamental issue is joined. Professor Canning and Dr. Ezekiel emphasize the social and political aspects. They seem to subordinate productive efficiency to other criteria of a wise farm program. Professor Benedict, on the other hand, makes productive efficiency the basic criterion, and challenges the validity of remedial measures which seem to promise indefinite continuance of drafts on the public treasury and thence on the income of all non-farm workers.

Dr. Ezekiel's paper strikes me as somewhat idealistic, in that it emphasizes the "welfare" objective of farm policy, while it glosses over the costs of such policy. Both Dr. Ezekiel and Professor Canning reflect the social philosophy of the Department of Agriculture. With that philosophy I do not wish to quarrel, so long as it does not promote the interests of the farmer at the undue expense of the rest of us. Mind you, I have no objective definition of the term "undue." I realize that unless the farmers and their representatives fight for farm interests those interests will be neglected. That is true of any interest or vocational group. The fight is one of the processes of democracy.

The philosophy of democracy demands that the interests of no one group shall be allowed to transcend the interests of the whole public. The ultimate consumers should not be sacrificed to the farm interest. But the thing works the other way too. The ultimate consumer should pay the full costs of agricultural production. He should not be subsidized, as he usually has been, by the farmer and the farm laborer. There is not a man in this room who is not subsidized by the share croppers of Mississippi and Texas. A rationally planned society will see to it in time that all *needed* farmers get a decent standard of living. On the other hand, as Professor Benedict suggests, it is hardly fair to ask the non-farming population to support three million superfluous farm families. A rationally planned society will see to it that workers are properly distributed between industry and agriculture, to secure that economic balance and that full utilization of resources, both human and natural, which is the ideal of the equilibrium economist, and which was pointed to as an objective as far back as 1767 by Sir James Stuart.

Dr. Ezekiel undertakes to suggest to us, I think, that the present complex of farm policies is for the benefit of the ultimate consumer as well as the farmer. Frankly, I am not greatly impressed. Some of the measures he mentions, like penny milk and the food-stamp plan are relief measures, necessary in an economy which has not organized itself to pay living wages, but not otherwise. The ever-normal granary plan can only by a stretch of the imagination be regarded as set up for the protection of the consumer. It was set up, not to help the consumer, but to maintain prices. Conceivably, if the winning of the present war should prove an even longer and harder task than we think it will be, the ever-normal granary might save the nation. Aside from this improbability, I take it as a challenge to our intelligence to tell us that the plan was set up for any other purpose than to save the farmer.

We may, if we wish, look at agricultural policy as a rescue program. But we do not have to admit that it must be carried through regardless of cost. No one will quarrel with rescue so long as it is a demonstrated necessity, and so long as it does not, like protection to young industries, become a chronic demand on the nation's pocketbook. The moment it does that, we know that something is drastically and fundamentally wrong with it. If we are asked to regard the program as one of welfare promotion, we still have the right to examine its costs and the distribution of the welfare supposedly derived from them. If it is an experiment in "institutional progress," it is our duty to cross-examine its advocates, for we have the right to know whether institutional "progress" is leading us into chronic paternalism exercised through perpetual government subsidies, or into a balanced economy where subsidies are unnecessary.

One of the arguments for subordinating over-all efficiency of agricultural production to certain social considerations is the population argument. Doctors Ezekiel and Baker say that one important farm crop is youth for city industries. In my opinion, the crop of farm youth has been, during the past twenty years, just about as redundant as the troublesome surpluses of wheat and cotton. And I do not know what the ethical philosophy is that gives us the right to demand of farm wives that they be the breeders of an urban industrial proletariat. In any case, we should remember that the highest fertility rates are in just those regions—the Southern Appalachian Plateau in particular—in which the rural standard of living is most indecently low. We should remember, also, as Professor Benedict has pointed out, that improvement in the rural standard of living will almost certainly lower the farm birth rate. I, for one, would give no Federal aid for education in states swamped with children unless those states follow the lead of North Carolina and establish public birth control clinics. Of all the arguments for a farm program that would subordinate fundamental economic principles of balance and efficiency to assumed social objectives, the population argument is the weakest.

Much has been said of farming as a way of life, but I notice that most of those who talk that way have long since left the farm and got themselves white-collar jobs. The idea that the isolated American family-farm provides a superior way of life is a pleasant American myth. I have yet to hear any reasoned argument or conclusive proof that farmers are in general better citizens or broader-minded individuals than urban industrial workers. As yet we have only assumptions, not proof, that large-scale mechanized, even corporate, farming must inevitably create a poverty-stricken rural proletariat. Legislation as to hours, wages, and living conditions could easily prevent that. The Associated Farmers of California and Okie incidents should not make defeatists of us. In time the social problems of farming can be solved, and without too much sacrifice of the economic benefits of technological advance, optimum size of farm unit, and productive input-output efficiency.

Public policy in aid of farm interests has become a major political issue. To the general public, the expediency or in expediency, the justice or injustice, of continued public subsidies to agriculture is the focus of the agri-

cultural problem. This is also probably the immediate focus in the minds of most of us here today, though it might be pleasanter to have the focus a little blurred. Yet we had to wait to near the end of Professor Benedict's paper before we heard pertinent remarks—and to my mind they were pertinent indeed—on parity prices and continued drafts on the Treasury. Benedict seems to be a realist. Tender-minded persons may possibly feel that he is slightly cynical. I do not. Farmers, like the rest of us, are money conscious. Like the rest of us, they have to be. Attainment of parity will not change the outlines of rural life, nor, as experience of the past few weeks has demonstrated, will it check farm organization demands for still further public favors.

Analysis of the farm problem, as of every other economic problem, should never lose sight of the distinction between production and distribution. We cannot (peace to the marginal productivity theorists again) measure the absolute productivity of any individual or any factor of production. But we do know that it is possible, and not uncommon, for the initiated to get a nice living without producing anything much, and we ought to know that the more we get ourselves paid for inefficiency the more inefficient we are going to be. We need to remember, moreover, that there is no sharp dividing line, but only a gentle gradation, between unproductive getting and outright predation. Professor Canning gives us in measures almost dithyrambic a defence of Federal rescue programs and a moving plea for the management of institutional progress. Nevertheless, I have the very distinct feeling that any organized interest group, whether it be organized labor or the farm organizations' lobby, which blocks the enactment of an effective anti-inflation law in times like these is not only essentially predatory but unpatriotic and un-American. I cannot believe that the dirt farmers themselves would oppose such legislation.

NOTES

AN ECONOMIC ANALYSIS OF LENGTH OF FEEDING PERIOD IN THE PRODUCTION OF HOGS¹

AT WHAT age and weight does the farmer equalize marginal costs and returns in the production of hogs? From the viewpoint of economic theory the answer involves an application of the principle of diminishing returns and depends on three sets of data, the rate of gain of the hogs, the price of feed and the price of hogs. There are also some other cost considerations which are capable of modifying the point of maximum net returns; but these three are predominant.

The problem is of wide practical importance wherever hogs are produced commercially. Rates of gains vary widely from one farm to another and even from one lot of hogs to another on the same farm. Further, the ratio of corn to hog prices also shifts, sometimes with bewildering rapidity. With a gain of 1.2 pounds per pig per day and a corn-hog ratio of 12 to 1, will the farmer maximize his net returns by selling his hogs at 200, 225, or 250 pounds? Suppose that the farmer and his helpers at the agricultural experiment station figure out the right answer to that question, and that the corn-hog ratio then changes to 10:1. How much of a shift is required in age and weight of the hogs to obtain maximum returns under the new conditions? Disappointingly, we find that, though the problem has long been recognized and discussed, very little has been done to work out specific answers for common ranges of rate of gain found on farms, and for common ranges of the corn-hog ratio. In fact, even the theoretical procedure for this particular problem has not been at all well developed.

It should be mentioned at the start that the nature of the "diminishing returns" encountered here differs in important respects from the conventional classroom illustrations. In the ordinary example, such as the variation of fertilizer applications to a given area of a crop, it is assumed that there is a standard length of production period and that the variations in returns are brought about by modifying the proportions of the production factors within that period.

¹ A more complete discussion of the investigation reported here is to be found in a thesis for the degree of Master of Science at Iowa State College, entitled, Applications of the law of diminishing returns to the production of hogs, and written by Robert E. Menze, under the direction of John A. Hopkins.

In the present problem, on the contrary, the combination of the production factors remains relatively constant (except that provision for housing and the cost of caring for sows and pigs up to time of weaning is spread more thinly over the pork poundage produced in the longer as compared to the shorter production periods). The essential variation in this case is in the length of the production period. The rate of input per day and the proportions between feed and labor does not change greatly from shorter to longer periods. What does change is the resulting amount of gain per day and the proportion between feed input and gain on the hogs as the feeding period advances.

For the purposes of this study, data were analyzed from a set of hog feeding experiments which included 47 lots with a total of about 300 individual hogs. This basic information was made available by the Animal Husbandry Department of Iowa State College. Rates of gain and of feed consumption on these hogs were comparable to those obtained by good or moderately good hog producers under farm conditions not only in Iowa, but in other areas as well. Analysis of these data may be divided into two fairly distinct phases or stages.

The specific objective of the first part of the study was to describe the hogs in the experiments in terms of their physical behavior, by determining average gains, average amounts of feed, and average gains per unit of feed at various phases (regular weight intervals) of the hogs' life cycle. This led to the construction of curves of growth and feed consumption representative of designated types of hogs—including large size type, medium size type, selected poor gainers.

The following tables indicate the typical performance pattern of the principal types of pigs mentioned.

The second step involved the assumption of prices and costs and the determination of the amounts of profit or loss that would have been secured by selling the various types of hogs at successive weights up to 300 pounds. In this way an approximate point—with respect to each cost price scheme—of maximum economic return was secured. The amounts of profit or loss were obtained under two different assumptions: first with constant prices per 100 pounds at all weights of hogs, and second (more realistically), when hog prices are taken with the usual price differentials between different market weights of hogs.

TABLE 1. PHYSICAL PERFORMANCE

Weight interval	Pounds daily gain			Pounds daily feed			Pounds gain per pound feed		
	Large type hogs	Medium type hogs	Selected poor gainers	Large type hogs	Medium type hogs	Selected poor gainers	Large type hogs	Medium type hogs	Selected poor gainers
40- 80	.75	.80	.80	2.50	2.85	2.90	.300	.280	.275
80-120	1.12	1.16	1.20	4.20	4.55	4.80	.267	.255	.250
120-160	1.47	1.38	1.45	5.82	5.78	6.00	.253	.238	.240
160-190	1.49	1.49	1.55	6.70	6.67	7.00	.222	.223	.220
190-210	1.53	1.50	1.45	7.04	6.85	6.90	.217	.219	.210
210-230	1.56	1.48	1.35	7.26	6.90	6.90	.215	.214	.195
230-250	1.59	1.44	1.25	7.48	6.95	6.70	.213	.207	.185
250-270	1.60	1.40	1.20	7.70	7.00	6.70	.208	.200	.180
270-290	1.61	1.37	1.20	7.85	7.10	6.85	.205	.193	.175
290-310	1.65	1.34	1.15	8.05	7.20	7.20	.205	.186	.160
No. Lots	11	32	14	11	32	14	11	32	14
No. pigs	79	217	87	79	217	87	79	217	87

Table 2 shows the cost of producing 100 pounds gain at successive weight intervals of pigs with the physical behavior of those depicted in Table 1 and under the stated price assumption. This cost, essentially marginal in character, is also the price at which the

TABLE 2. COST OF PRODUCING 100 POUNDS GAIN

Weight interval	Type of hogs		
	Large	Medium	Poor gainers
40- 80	\$6.12	\$6.52	\$6.63
80-120	6.63	6.92	7.04
120-160	6.82	7.21	7.13
160-190	7.53	7.49	7.59
190-210	7.65	7.55	7.87
210-230	7.60	7.65	8.32
230-250	7.65	7.85	8.67
250-270	7.80	8.05	8.98
270-290	7.80	8.30	9.12
290-310	7.75	8.55	9.90

hogs would have to be selling, at any point, before the producer would cease feeding and sell. Thus, as long as the price is higher than the cost, the producer will continue feeding to a heavier weight; conversely, when the price is lower than the cost, the producer would know he should have stopped feeding at a lower weight.²

² The assumed prices of the factors included in determination of the cost of producing an increment of live-weight of hog are: corn—1½¢ per pound (84¢ a bushel); supplement—2½¢ per pound; labor—25¢ per 100 pounds gain. Note that cost of equipment, breeding herd, etc., are not included above. Such things may be called fixed costs and are incurred no matter what weight the hogs are carried, and thus do not enter into the calculation of the cost of an additional increment of gain.

When we assumed that prices of hogs vary as between different weight classes, we had to depart from the marginal procedure followed above, and compare total costs and receipts per hog at each successive stage of his growth. This was necessary because when a price differential applies, the reduction in price, as the hog grows heavier, affects not only income from the last increment of weight, but also represents a reduction in receipts for earlier increments as well. Table 3 shows the profit or loss of producing hogs at various weights at three "base" prices.³

TABLE 3. DETERMINATION OF HIGHEST PROFIT OR LEAST LOSS COMBINATION, ALLOWING FOR MARKET HOG PRICE DIFFERENTIAL BY WEIGHT

Weight interval	Percentage of base price	Base price 10¢			Base price 9¢			Base price 8¢		
		Large	Medium	Poor gainer	Large	Medium	Poor gainer	Large	Medium	Poor gainer
40-80										
80-120										
120-160	92	-1.79	-2.22	-2.28	-2.89	-3.32	-3.38	-4.00	-4.43	-4.49
160-190	98	-0.39	-0.81	-0.90	-1.86	-2.28	-2.37	-3.33	-3.75	-3.84
190-210	100	0.38	-0.02	-0.17	-1.32	-1.72	-1.87	-3.02	-3.42	-3.57
210-230	100	0.86	0.45	0.17	-1.04	-1.45	-1.73	-2.94	-3.35	-3.63
230-250	99.5	1.23	0.78	0.34	-0.86	-1.31	-1.75	-2.95	-3.40	-3.84
250-270	98	1.31	0.81	0.18	-0.94	-1.44	-2.07	-3.20	-3.70	-4.35
270-290	96	1.21	0.61	-0.18	-1.19	-1.79	-2.58	-3.59	-4.19	-4.98
290-310	94	1.04	0.28	-0.78	-1.50	-2.26	-3.32	-4.04	-4.80	-5.86

The results in Table 3 show that quite a difference exists in optimum marketing time, depending on whether the hogs are poor gainers or good gainers. In general, the selected poor gainers reached the point of maximum profitability at least 20 pounds lighter than the better hogs. The farmer should take this sort of evidence into account and, if his pigs are gaining at a lower rate than the "experiment" pigs, he should plan to dispose of them at relatively lighter weights—after he has reckoned with other factors. If he expects a price change, or is worried about a disease epidemic, he will simply have to weigh the importance of these things, and adjust his market activities accordingly. But if he has a locus from which to make his adjustments, certainly he is somewhat better off. Thus, in this study, we have simply established a point of departure, so to speak, from which the producer can proceed in

³ In order to get an idea of the percentage variation in price at different weights from the "base" weight interval (the base price being that for hogs of approximately 220 pounds—the highest price) at an actual market, we examined daily hog prices at the Chicago market for a number of days in several scattered months for the years 1936, 1938, 1940, 1941. By inspection, a rough index was constructed with a base of 100 at the weight interval 200-220 pounds. Prices over a range of weights from 120-330 pounds were expressed as percentages of this base price. These percentages are depicted in Table 3.

the manner that his particular situation designates. If a farmer's hogs are not making gains comparable to the average gains we have shown, he must make the adjustments indicated by the approximate deviation of the performance of his pigs from the established "norm."

It has been demonstrated in our results that a change in price exerts a distinct influence on the weight to which hogs should be fed. In fact, from the schedules of profit and loss presented in the Table 3, a rise in the price of hogs of 1¢ a pound—feed cost constant—should induce the hog producer to feed to weights about 20 pounds greater. Actually, farmers do respond to changes in price, but slowly, and often insufficiently.

The role played by the hog price differential by weight is a very important one. Assuming a base price of 9¢ a pound (with corn at 84¢ a bushel, a corn-hog price ratio of 10.7), we conclude from Table 3 that the point of decreasing profitability, allowing for a market hog price differential by weight, in the production of a medium type hog occurs roughly within the limits of 230–250 pounds.

On the other hand, we note from Table 2, which takes no account of a price differential, that the cost of producing an additional 100 pounds of gain (also, the price which the hogs would have to be selling to be marketed with maximum profit) on a medium type hog is only \$8.55 (or 8½¢ a pound) at 300 pounds. Thus, at our assumed price of 9¢, it would be profitable, if the same prices prevailed at all weights of hogs, to carry the medium type hogs at least to 300 pounds.

The hog producer could make practical use of this aspect of our results for the amount of this differential varies from time to time, as is well known, responding to changes in demand for hogs of various weights, sometimes to supply, etc. In some seasons the factor is of relatively minor importance. The producer should consider this and feed to heavier weights as the relative price of heavy hogs to medium hogs increases, and, conversely, sell earlier when the price differential is large. Policy makers who desire to increase hog production—one means of doing which is to encourage heavier hogs—may well pay heed to this factor. Thus, an effort to minimize or offset the effect of the price differential by weight, by instituting a bonus for certain weights of hogs, for instance, might be effected, in the light of our evidence, to increase rather substantially total pounds of hogs produced in this country. For it is shown in Table 3

that the price differential prevailing in the past few years lowered the optimum market weight of the experiment hogs about 50 pounds in nearly all cases.

It is realized that these results are subject to a number of practical limitations. In the first place, the data from the experiments cannot necessarily be taken as typical of the performance of other pigs. There is a fair degree of probability that the experiment pigs made gains slightly in excess of those the average producer might expect of the hogs. On the other hand, the results obtained from on the pigs in the experiments were not better than those obtained by the more efficient hog producers. Second, we have made very precise assumptions regarding the costs of gains when, practically, it is very difficult to make completely accurate estimates of such costs as feed and labor. Also, farmers may be more concerned with other factors than the cost aspects in deciding when to market their hogs. While we have allowed for a price differential as a result of weight, we have not considered the effects of seasonal and cyclical changes. However, farmers often actually sell hogs in the weight range from 220 to 240 pounds because they are anticipating seasonal drop in prices when it would otherwise be profitable to continue to feed them to heavier weights. Other factors are at work which result in a tendency for farmers to disregard the cost factors: for instance, amount of feed on hand, habit, uncertainty about disease, and perhaps war.

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RECEIVED FEBRUARY 10, 1942

RELATION OF INCOME TO FARM CAPITAL

Further discussion of questions raised by Professor Norton¹

THE purpose of this discussion is the same as that of Professor Norton's; namely, to contribute if possible to the solution of the problem of the relation of income to capital on farms.

Relation of Farm Privileges to Capital

Professor Norton offers the criticism that farm privileges should be included as a part of the income from the farm, and not left out

¹ Lewis on relation of income to farm capital, by L. J. Norton. *JOUR. FARM ECON.*, Vol. XXIII, No. 4, November 1941.

of account in attempts to discover the relation of farm capital to income. In his table on page 891 of the JOURNAL he has shown how the addition of a reasonable estimate of farm privileges will alter the residual returns to farm capital so that they will be approximately in proportion to capital on different grades of land, with an average capitalization rate of 7.19 percent. He goes on to pronounce this rate of capitalization logical, that is, reasonable.

However, there are the following incompatible assumptions, or assumptions incompatible with conclusions, in the calculations employed:

(1) Item D, labor returns per worker, was calculated without including any farm privileges. If it is logical for farm privileges to contribute to capital returns and thus influence the value of capital, surely it is yet more logical that they contribute at least somewhat to the estimate of the returns to the operator's labor. In practice nearly all of the privileges are actually consumed by the farm operator even if he is a renter; but the calculations in the table on page 891 award them all to the landlord, or owner.

(2) Item D, labor returns per worker, was calculated on the assumption that the rate of return on capital was 5 per cent. Total returns to the operator's labor and capital, plus expenses for labor, minus 5 per cent of the farm capital, divided by the number of workers on the farm (man equivalent), equaled labor returns per worker. Acceptance of this assumption does not permit arriving at the conclusion that 7.19 per cent is a reasonable rate on capital. If 7.19 per cent is a reasonable rate, that percent, or something close to it, must be used throughout the problem.

Notwithstanding these criticisms of the methods of calculation employed in the table on page 891, the idea that farm privileges should be tested as a part of the returns influencing capital is still well worth consideration. The first segment of the problem is to arrive at a reasonable valuation of the operator's labor. Professor Norton has accepted the average returns per worker in each land class as a reasonable valuation. When this assumption is reconciled with the proposition that farm privileges should be included in income, it becomes necessary to value the operator's labor at average labor earnings per worker. These may be roughly calculate as follows:

Land class	Farm income	Labor expenses per farm	Farm privileges (estimated)	Total returns to labor and capital	Assumed capital returns at 5 per cent of capital	Total labor earnings of all farm workers	Number of workers per farm (man equivalent)	Estimated value of operator's labor (labor earnings per worker)
III	\$ 382	\$ 322	\$360	\$1,064	\$ 425	\$ 639	1.5	\$426
IV	719	467	440	1,626	610	1,016	1.7	598
V	1,283	837	520	2,640	889	1,751	2.1	834
VI	1,879	1,370	600	3,849	1,312	2,537	2.7	940

The estimates of farm privileges appearing in the fourth column of this table average \$480, the figure used by Professor Norton, but adjustments have been made between land classes as suggested by him in the first paragraph following his table, on page 891. Privileges unquestionably do rise in value with the productivity of the land.

The second phase of the problem is to derive a residual return to capital, based on the estimated returns to the operator's labor and including farm privileges in the income from the farm, as follows:

Land class	Total capital per farm	Labor and capital earnings (farm income plus farm privileges)	Estimated value of operator's labor (labor earnings per worker)	Capital earnings	Per cent of capital per farm	Capitalized at 4.91 per cent	Capitalized earnings, per cent of actual capital	Error
III	\$ 8,497	\$ 742	\$426	\$ 316	3.72	\$ 6,436	75.7	-24.3
IV	12,197	1,159	598	561	4.60	11,426	93.7	- 6.3
V	17,789	1,803	834	969	5.45	19,735	110.9	+10.9
VI	26,238	2,479	940	1,539	5.87	31,334	119.4	+19.4
Average	—	—	—	—	4.91	—	99.9	15.2

The average rate of capitalization arrived at by this method is 4.91, or practically the same as the 5-per cent rate assumed in the first phase of the problem. This circumstance relieves us of the burden of pronouncing reasonable such a high rate as 7 per cent. As between land classes, however, there is a quite wide and consistent variation in the rate, and the average error made in estimating average capital per farm in the four land classes by capitalizing capital earnings at 4.91 per cent is 15.2 per cent. This is not so large as the error that would result if less allowance were made for variations in labor returns as between land classes, but is still considerable. These figures definitely are not evidence on which to base a claim that capital earnings (including farm privileges) should be used instead of some measure of capital returns in explaining variation in capital values as between different grades of land; nor do these figures support the traditional residual as against

the proposed proportionate methods of calculating capital earnings or returns.

Logic of Adding One to the Man Equivalent to Represent the Owner of Capital

To Professor Norton it does not seem logical to add one man to the number of workers on the farm (including the farm operator) in order to find the number of annual net incomes earned and the average annual net income (capital and labor returns per man). In the report which he has discussed the reader will find considerably more said on the logic of this point than Professor Norton had space to quote in the first paragraph on page 890 in the JOURNAL article. The reader is referred especially to items (4) and (5), pages 98 to 100, in the original report.

In this note it is well to point out, in addition, that one of two farms of any given grade may be owned by a landlord and rented to a tenant, while the other may be both owned and operated by one man. In the second case the owner-operator should receive an income which is the same as the total of those received by the tenant and the landlord on the first farm. In other words, an owner-operator receives two net incomes, one as owner and the other as operator. If during the same year he can and does perform the services of both, it seems reasonable that he should receive the incomes due to both.

Appraisers' Valuation Theories

Professor Norton questions a suggestion made in the report that appraisers for loans have assumed that the returns to labor were the same on all grades of land. He considers that appraisers usually attempt to determine the exchange value of farms without making assumptions as to farming returns or the possibility of repayments out of income. It may be true that most appraisers have in the past determined values without placing much dependence on capitalized income and without having any formal capitalization theory in mind. This so-called comparative method of determining farm values may indeed be the most reliable method. When appraisers recommend loans, however, they must have in mind some formal or informal conceptions as to the relation of exchange value to loan-paying capacity, or of normal exchange value to normal loan-paying capacity. What these conceptions are can be determined by examining the results of lending operations, better

than by questioning appraisers on theory. By our acts our theories are revealed.

Thus far the typical finding is that loans are about the same percentage of appraised value on all grades of land. This result indicates that the loans must have been made on the formal or informal assumptions

- (1) That the value is in proportion to the returns to capital.
- (2) That the loan is to be serviced out of the returns to capital.
- (3) That the same proportion of returns to capital is available to pay out in cash on one grade of land as on another.

(4) Therefore, that on all grades of land the returns to the operator's labor alone are sufficient to support the farm family. Either the returns to labor are thus assumed to be equal on all grades of land, or it is assumed that farm family living standards will normally be cut down to fit the labor income on even the lowest grade of land in use. The former is the conventional Ricardian assumption, and would naturally be that of the many persons who still do not realize, as Professor Norton suggests, the great divergence in the labor incomes of people on different classes of land.

The alternative relationships between income and capital that are pointed out in the report under discussion do not contradict assumption number (1) and not necessarily assumption number (2). They do contradict numbers (3) and (4), and indicate instead that on many farms on the less productive grades of land the farm operator must retain a considerable share of the ownership of capital, and of the returns earned on capital, in order to be able to support his family. This means that a smaller share of the income to capital can be paid out in cash to a non-occupying landlord or creditor on poor land than on good; and that consequently loans of equal stability will be smaller in proportion to the normal exchange value of capital on the lower than on the higher classes of land (as defined in the report). Loans on the less productive land which are larger than can be supported bring about the eventual breaking of contracts or the foreclosure of farms, and do not constitute a social good. While the avoidance of the lower land classes in making loans is too extreme a measure to take, strong efforts to adjust loans to the loan-paying capacity of farms on different grades of land are to be recommended. These efforts probably would result in loans that are higher than present loans in per cent of reasonable values on the productive land, and loans that are lower in per cent of reasonable values on the less productive land.

Gratitude is due Professor Norton for his careful study of the report and accurate emphasis of the main issues involved. The best results will have been obtained if the report and his criticisms of it stimulate workers in agricultural economics to make further statistical studies bearing on the very fundamental economic problems involved in credit and taxation.

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AN INVESTIGATION ON COMPLEMENTARITY RELATIONS BETWEEN FRESH FRUITS: A REJOINDER

IN HIS note¹ in the August number of this JOURNAL, Dr. Adolph Kozlik is primarily concerned with two points: (1) the inadequacy of Henry Schultz's rough test for interrelated demand, and (2) the significance of the results of an investigation I discussed in an earlier number of this JOURNAL.²

I have no issue to take with the contention that the rough test is inadequate. If it were adequate, there would be no need to use other tests. We are, however, indebted to Dr. Kozlik for briefly indicating some of the shortcomings of the rough test.³ But it should not be forgotten that all of the available statistical tests of interrelated demand have some defects.

More than superficial reading of my original article clearly shows that it was not an uncritical application of methods, as caution was expressed in discussing the tests and the results. The complete multiple regression equations with standard errors and related statistics were shown for the specific purpose of permitting the reader to judge for himself the statistical significance of the

¹ An investigation on complementarity relations between fresh fruits: a reply, JOUR. FARM ECON., August 1941, 23: 654-656.

² An investigation on complementarity relations between fresh fruits, JOUR. FARM ECON., May 1941, 23: 421-433.

³ A more general treatment of Kozlik's mathematical demonstration free from the assumption of equal elasticities and specific form of the demand functions has been brought to my attention by my former colleague G. M. Kuznets of the University of California. Let the demand functions for two independent commodities be

$$c_1 = f(p_1) \text{ and } c_2 = \phi(p_2)$$

The relative variations of quantities and prices may be written respectively as

$$d \log(c_1/c_2) = n_1 dp_1/p_1 - n_2 dp_2/p_2$$

and

$$d \log(p_1/p_2) = dp_1/p_1 - dp_2/p_2$$

where n_1 and n_2 are the elasticities of demand for commodities 1 and 2. Clearly, the ratio $d \log(c_1/c_2)/d \log(p_1/p_2)$ will not equal 1 except in special circumstances.

results. Sufficient data were given for the reader to be able to apply tests of significance such as the t test, and to draw his own conclusions. Furthermore, the discussion made no pretense of giving definitive answers, but did outline in detail the reasoning used in reaching the tentative conclusions presented. I had no brief for some particular demand interrelations between the fruits examined, but was particularly interested in emphasizing the importance of considering interrelated demands in the formulation and prosecution of marketing agreements.

Now a few words on some other of Kozlik's comments. He maintains, with some justification, that Henry Schultz's rough test "should be abolished because it is based on an erroneous assumption." Later he writes, "the 'rough test' and the 'Hotelling test' must yield similar results since they are based upon the same sample. The similarity of the results never can confirm the results, since the one is supposed to be a short cut for the other." Why the fact that the two tests are based on the same sample makes it imperative that they yield similar results is not at all clear. Since the two tests are not algebraically equivalent and apparently not even approximately deducible, one from the other, it is difficult to grasp the point of his argument. Furthermore, following his reasoning as stated in the foregoing quotation, we are faced with a seeming paradox. If the two tests "must yield similar results" and "the rough test should be abolished," then the Hotelling test also should be abolished. But Kozlik does not suggest the latter.

The statement, "One cannot use time series for correlation and deny the validity of the standard error," expresses an opinion which one may or may not share with Kozlik. It is dogmatic to label, as Kozlik does, a dissenting opinion a "fallacy." A similar comment is applicable to Kozlik's dictum that the standard error be used as a minimal estimate of error. In the present state of probability treatment of time series, I preferred to provide the reader with the necessary expressions for carrying out tests of significance and let the reader judge for himself how much importance to attach to the statistical results.

Presumably, Dr. Kozlik's forthcoming Research Handbook for Interrelated Demand will present and discuss new material on the subject. We hope so, because anyone who has worked in that field well realizes that constructive contributions are urgently needed.

SIDNEY HOOS

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RECEIVED OCTOBER 22, 1941

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REVIEWS

Paying for Defense, Albert Gailord Hart and Edward P. Allen, Philadelphia, The Blakiston Company, 1941. Pp. 275.

The twenty-two chapters of this book are arranged into six parts under the following headings: *How Far Can We Safely Rely on Expansionary Financing*, *How Much Non-Expansionary Financing Can Be Done By Borrowing*, *What Kind of Taxes Should We Use*, *How To Make Fair Taxes Block Inflation*, *War Finance Abroad*, and *A Program For Defense Financing*. The preface is dated as of June 26, 1941. The original reports upon which the book is based were prepared in response to a request of the American Farm Bureau Federation.

The authors state that the "book is a study of fiscal policy, focussed on the problem of blocking inflation, but stressing also the need to use fiscal powers to stimulate production, to guide production into channels helpful to defense and to distribute defense burdens fairly." A positive program is presented, resting chiefly on the use of personal income taxation on a scale not hitherto attempted in this country with emphasis on prompt collection.

Six objectives of efficient and fair defense financing are listed over and above the providing of funds, namely: Getting maximum output; preventing inflationary general price increases; sharing defense burdens fairly; giving all citizens a sense of sharing in defense; releasing resources needed for defense; and promoting a healthy financial structure. The authors state that with modern financial organization the range of financing available is so great that we may be sure defense will not be cramped because the government cannot raise money; that the basic problem which lies behind defense financing is not to secure money but to secure manpower, materials, and machinery for defense activities.

After reviewing various means of financing and price control, the authors conclude that we could not hope to finance defense without inflation except by heavy use of non-expansionary financing. That protection against inflation calls for setting up a much more powerful tax system than we now have. Such a tax system would need three requisites which our present income taxes lack. First, an adequate base of taxation to bring sufficient spending power within reach of the tax collector; second, prompt collection so that changes in tax rates will bring a prompt revenue response;

and third, timely adjustment of rates to keep inflation from gathering momentum.

With a national income of 90 billion dollars it is suggested that to block inflation one may need an additional 10 billion of revenue from income taxes. Assuming that it would not be considered fair to take more than half of taxable income on the average, it is suggested that 25 billion dollars would represent the smallest income base from which taxes adequate to block inflation could be guaranteed. This would be essentially double our present income tax base. To increase the income tax base, it is proposed to: Lower the present exemption; stiffer regulations; revise the present policy of exempting government securities from taxation; include in taxable income more of non-cash income items such as the rental value of owner-occupied homes; allocate undistributed corporation profits to individual stock holders; make separate returns for husband and wife.

As to prompt collection, it is proposed that taxes on interest and dividends and salaries and wages in excess of a modest exemption be collected by withholding at the source of income at the time these incomes are paid and that the quarterly payment of taxes be stimulated.

It is suggested that Congress might delegate the announcement of effective rates to the Treasury, setting up rules in the revenue act to determine the way in which rates could be changed. Change in rates might be related to the change in the Bureau of Labor "cost of living" index.

The review of war finance abroad points out that Great Britain is now putting about 40 per cent of her national income into defense, Germany nearly 75 per cent.

The presentation is developed around the thought that the basic problem of avoiding inflation is to keep consumer spending from outrunning consumer goods output; that government expenditure would not raise prices if it were accompanied by an equivalent decrease in civilian expenditure.

In reading the book the reviewer was again impressed with the rapidity with which events have moved since June, 1941. The authors speak of possible defense expenditures of 20 to 30 billion dollars in 1942-1943. Already Washington is talking of 40 to 50 billion dollars for the coming year. In the opinion of the reviewer, recent events will cause more emphasis in our price control policy

to be placed upon price regulation, priorities, and rationing than is given by the authors.

The book performs well the task of presenting the problems of defense finance and inflation control in a manner understandable to the reader not an expert in government finance.

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Investment and Business Cycles, James W. Angell. New York: McGraw-Hill. Pp. 363 \$3.50.

In this book the business cycle is explained by a psychological theory of exceptional purity. A rising level of income raises "Anticipations" and this results in further increases in investment and consumption so that the cumulative process of expansion feeds on itself; and similarly with a cumulative contraction of economic activity. When anything happens to slow down the rate of increase of income this makes "Anticipations" fall and so there results an absolute decrease in investment and consumption, turning the phase of expansion into a recession and contraction until the process is reversed again in the same way. This is very reminiscent of Professor Harrod's somewhat more sophisticated "Trade Cycle."

The trouble with such a use of "Anticipations" is that it can explain anything. This is what makes Professor Angell's investigation of the natural effects of "Anticipations" read like an excellent description of what actually happens in the course of a business cycle. While treated as if it were at least conceptually a measurable quantity, "Anticipations" is seen on closer examination to consist of many different characters each of which can be called upon in turn to don the mask and play its part in the drama of the business cycle or indeed in any other tale that one might wish to tell. A given level of "Anticipations" may mean a given liquidity preference, a given propensity to consume, a given marginal efficiency schedule of investment, or a constant rate of change in any or all of these (as when it is stated that a constant increase of income can be the result of a constant level of "Anticipations"). Apart from exogenous influences "Anticipations" depends on the levels and rates of change of income at various points in the past, and current income depends on the levels and rates of change of "Anticipations" at various points in the past. When to this there is added "a certain amount of play" and even discretion by busi-

nessmen in estimating the probable approaching end of a phase of the business cycle, the flexibility of the scheme certainly appears excessive.

A great part of the book is devoted to the analysis of the effects on income of a change in investment. This study is grievously hampered by a strong attachment to the quantity theory of money and especially to v' , the income velocity of circulation (*alias* h , the propensity to hoard), which prevents the propensity to consume from being isolated from liquidity preference considerations and leads to many confusions such as that between the effects of an increase in the *rate* of investment and the effects of an increase in the amount of money that may accompany an *act* of new investment. This results in v' masquerading as the multiplier because it is the number by which the increase in the amount of money must be multiplied to give the increase in income that will result if v' does not change. Thus the whole question of the effect of the increase in investment on income (and incidentally on v') is lost sight of. However this and other errors are largely corrected by a cumbrous and often misleading study of "leakages" which cannot be examined here.

The same trouble is even more evident in a chapter on the multiplier, where it leads to a remarkable series of misunderstandings of Mr. Keynes such as the charge that he assumed the marginal propensity to consume to be equal to the average propensity to consume or the failure to recognize that Mr. Keynes' multiplier refers to *net* investment and leaves the road clear for the undoubtedly important consideration of private investment or disinvestment induced by government investment. The analysis is further vitiated by assumptions about increasing constant or decreasing "Anticipations," which mostly beg the question and always cloud the issue. These assumptions also result in some fearful tangles about average and marginal propensities to hoard.

Nevertheless, the conclusion of the book and its lessons for public policy show a sound emancipation from the disastrous deflationism which usually accompanies devotion to quantity theories. Apart from an isolated passage where *rapidly* increasing public debt is charged with threatening society with "bankruptcy"—whatever that may mean—and an illegitimate treatment of income tax as if it were a property tax to show it as a great discourager of investment, the last part of the book shows a clear under-

standing of the responsibilities of the government to maintain prosperity by positive action if civilization is to survive. It only goes to show that even a poor theory, if it is flexible enough, can be made to give sound results when applied with insight and intelligence.

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University of Kansas City

New Directions in Our Trade Policy, William Diebold, Jr., Council on Foreign Relations, 1941. Pp. 174 \$2.00.

This is a well written and compact little volume which according to the sub-title involves a study of the role of commercial policy in a critical period in American history. The book is divided into 6 chapters of which the first is decidedly introductory in nature. Here the author mentions the extensive disruption of the foreign trade of the United States as a result of the present war and sets himself the task of answering such questions as; what kind of commercial policy do we need to meet war time problems and should we be concerned only with promoting American business interests or should larger questions of national and perhaps world welfare be considered? A good job of answering these questions has been done, although in reading such a book a year after its publication many additional questions which are not touched upon will occur to the reader. For the most part, of course, the fact that the discussion may seem somewhat incomplete is not due to any fault of the author's, but rather to the rapid march of world events which make almost any writing of this kind out of date before it can be published. It does seem, however, that writing as recently as early 1941, somewhat more definite consideration should have been given to the additional problems and complexities which might have been expected to arise in the event that the United States entered the war as a full fledged and active belligerent.

In order to place the problem of war time trade in its proper setting, Mr. Diebold proceeds to appraise the nature and accomplishments of the Hull Reciprocal Trade Agreement Program which formed the basis of American commercial policy in the period 1934 to 1939. In this very excellent second chapter the author sets out to appraise the nature of the Hull program as a departure from the long established American practice of the unilateral setting of tariff rates by Congress. He discusses the application of the doc-

trine of the principal supplier, the reclassification of imports, the use of tariff quotas, the adherence to the most favored nation principle and equality of treatment, and the manner of dealing with foreign exchange control and import quotas in bargaining with individual countries for tariff concessions. The author concludes, as have most students of the trade agreements program, that it is impossible to prove statistically that the agreements increased the export trade of the United States but that such quantitative evidence as there is available strongly supports the view that they made some contribution to the moderate recovery in the export trade in the years immediately preceding the outbreak of the current war, although in some cases the effect of the agreements was overshadowed by other influences.

In his discussion of the Hull program the author carefully distinguishes as to what this program was and what it was not, and this is extremely useful in view of both the extravagant claims which were made for it by some free traders and the vicious attacks leveled at the policy by extreme protectionists. On page 3 Mr. Diebold writes as follows: "The Hull policy was not a free trade policy nor did it seek to eliminate all government control of foreign trade. Yet, compared with the present trade policies of other countries it was 'liberal'; it sought to end government discrimination and give market forces as large a share as possible in determining the flow of international trade." Again on page 23, "The trade agreements program did not introduce a free trade policy, or even a general low tariff policy, but a policy of altering tariffs to the degree necessary to get concessions for American exports without hurting domestic producers . . . the primary importance of the Hull policy lay in the fact that in 1934, for the first time since the Underwood Act of 1913, United States tariff rates started moving downwards, and the apparently irresistible drive toward increased protection was checked." This was a change not only of great historic importance in American trade policy but represented an attempt to curb some of the worst excesses of a period characterized by extreme economic nationalism. As Diebold points out, the United States had taken no part in the economic warfare of the depression period with its sharply increased import duties and extensive quantitative restrictions in the form of exchange regulations and import quotas of all kinds. This country clung to the most favored nation principle, making no concessions and tak-

ing no counter-measures, but maintaining such a high tariff wall, a barrier which reached an all time height under the Hawley-Smoot Act of 1930, that the American policy of equal treatment could hardly be considered to be other than a policy of equally bad treatment. As such it had to shoulder some of the responsibility for those policies of regulation and discrimination followed by foreign countries which throttled the trade of the United States and the world as a whole.

Chapter 3 which is entitled, "War's Impact on Peace Time Trading Policies," points out the fact that the processes of conquest and blockade and the necessary subordination of economic and commercial considerations to war requirements by countries such as the United Kingdom and Canada, and the disruption of the normal triangular and multilateral trade relationships of Latin American countries have largely suspended the practical operations of the agreements during the war period. It is concluded, however, that there is no sound basis for canceling the agreements, but that on the contrary they may furnish some useful machinery for stimulating imports to meet the growing needs of American defense work, to discourage price increases, and to avoid the overdevelopment of war boom industries.

In chapter 4 the possibility of expanding the trade agreements program is considered and it is maintained that the program should be kept alive not only for the purpose of preserving "liberal" trade policies for the post war period but as a means for integrating the trade relationships of the countries of the Western hemisphere and the Far East. Then follows a consideration of the desirability by the very real difficulties involved in increasing trade between the United States and the countries of Latin America, particularly the countries of the temperate zone such as Argentina and Uruguay the agricultural and raw material surpluses of which are closely competitive with staple food and raw material products of the United States. The latter part of this section merges with chapter 5 which involves a discussion of the non-economic aspects of recent American commercial policy. The author concludes that the commercial policy of the United States always has had important non-economic implications and that while the Roosevelt administration has continued in adherence to "liberal" trade policies in principle, the threat of a Nazi victory has led the government in practice to regulate foreign trade in the interest of national defense.

This has involved the promotion of increased inter-hemisphere trade, aid to Britain and China, and discrimination against Germany and Japan.*

The final chapter entitled, "New Goals of Trade Policy" involves some summarization of the effects of the war upon the reciprocal trade agreements program and the foreign trade of the United States in general and emphasizes the necessity of bending commercial policy to the achievement of war time goals and at the same time looking forward to a sound post war trade policy.

Mr. Diebold discusses the future of "liberal" commercial policies assuming a definitive victory by Britain. Reflections along this line are appropriate to the present under the assumption of a complete victory by the United Nations. He does not minimize the very great difficulties which will be involved in restoring trade at the close of the war. He feels that one working basis for an attempt to reestablish trade on the basis of economic advantage would be the organization of a great trading bloc, including perhaps the United States, Latin America and the British Empire. This bloc not only could coordinate its own economic development in the interest of manufacturing and raw material producing areas which would complement each other, but would be in an advantageous bargaining position as far as other parts of the world were concerned. It is quite possible that post war economic reorganization may take some such form as this, although with the conflict having assumed world wide proportions it would seem reasonable to hope that a world wide rather than a regional basis of economic reconstruction might be attempted. The author is quite sure, however, that the reestablishment of world trade will not be upon the basis of the 19th century ideal of free trade. Governments will not be in a position to make foreign trade free because of widespread controls in other branches of economic activity, the necessity of reconciling vested interests, the necessity for controlling powerful groups who, in the absence of governmental control, will be able to exercise controls of their own, and because people have become

* Although a consideration of trade barriers as a cause of war is without the scope of this book, Mr. Diebold seems to imply an acceptance of the view that trade barriers and economic warfare in general are primarily a result of war and the fear of and preparation for war, rather than primary causes of military conflict. For an interesting discussion of this question see *Role of tariffs in international friction*, by B. B. Wallace, chapter 17, in *Financing the War*, Tax Institute, Philadelphia, 1942. Also see Eugene Staley, *War and the foreign investor and Raw materials in peace and war*.

so used to the making of economic decisions by political processes that neither in the field of foreign economic relations nor in other phases of economic life will they be prepared to accept market outlets, prices and incomes as they accept the phenomena of nature. He feels, however, that trade controls, instead of being used as weapons of power politics can be used to facilitate a large volume of trade on the basis of mutual economic benefit. "Americans will seek laissez faire's ends, but not by laissez faire's means."

Most of us probably will agree that the machinery developed for controlling trade in recent years will be utilized extensively in the post war world. We can only hope that the United States and other nations will be wise enough to use this machinery to achieve results in line with the principle of comparative advantage.

BENNETT S. WHITE, JR.

University of Kentucky

Agricultural Finance, William G. Murray. Ames, Iowa, Iowa State College Press, 1941. Pp. 338. \$3.25.

Agricultural lenders, borrowers, teachers, and students will all find informative and stimulating material in Professor Murray's *Agricultural Finance*. Although the book was apparently written primarily for the student and worker in the field of farm credit, the first twelve chapters, dealing with principles of farm credit, should also be of value to a farmer-borrower who desires to use credit intelligently and profitably in his business. It is written with a very readable style, is well organized, and is sufficiently well illustrated to facilitate thorough understanding of the material presented. The book contains a wealth of up-to-the-minute factual information dealing with agricultural finance and financing institutions, and makes frequent reference to a wide variety of both current and historical research in all phases of farm credit.

The first 12 chapters of the book follow the functional approach to the subject of farm credit, while the last 18 chapters are concerned with agencies and institutions which extend credit to farmers and farm organizations.

Principles underlying the sound extension and use of credit on the individual farm are examined from the viewpoints of both the borrower and the lender in the first section. Of particular interest to credit agencies and their employees are the chapters dealing with balance sheet analysis, income analysis, marginal analysis,

price risk and loan policy, and budgeting. These chapters deal primarily with the principal means of evaluating a borrower's debt-paying capacity. Prospective purchasers of farm land will find much of interest in a well prepared chapter entitled "Buying a Farm on Credit."

The second part of the book, treats with the organization, history, and current description and analysis of all agencies which extend credit to farmers, either as individuals or as organized agricultural groups. This section deals with both private and public or quasi-public credit institutions, although 13 of the 18 chapters are devoted to the operation of those rural credits institutions commonly identified with the Farm Credit Administration, Farm Security Administration, etc. In this part of the book the author is to be commended for having winnowed essential and pertinent information about each agency from the great mass of detail which has been written about each of them since its organization.

Stating that "the primary reason a farmer should borrow money is to increase his income," the author appears tacitly to assume that all lenders of farm credit have a responsibility not only to encourage a farmer to borrow the proper amount—neither too much nor too little, but also to see that the farmer is borrowing for the proper purpose. This basic idea seems to underlie the chapters on "Income Analysis" and "Marginal Analysis." The rehabilitation loans of the Farm Security Administration, with their detailed farm and home plans, perhaps represent one extreme of supervised farm credit, while the old time loan based on security and security alone represents the other extreme. Perhaps the ideal situation lies somewhere between the two extremes. Yet the reviewer finds it difficult to accept the philosophy that progressive farmers who have ample basis for credit should have very many strings tied to their farm operations in connection with their borrowing money.

Although the book is entitled *Agricultural Finance*, it deals almost exclusively with agricultural credit. While it is true that the major problems in agricultural finance usually involve one or more phases of borrowing, it must also be recognized that many farmers in commercial agricultural regions seldom or never borrow money, and that a large share of the total capital used in agriculture is supplied by the farm owner and farm operator. This group

of men also have problems in agricultural finance, involving allocation of capital among various uses on the farm, expansion, progress along the "agricultural ladder," and the like. A common shortcoming of manuscripts dealing with agricultural finance is the tendency to give too little attention to problems faced by the borrower in the proper use of his capital and credit in order that he may advance financially as rapidly as possible and yet maintain proper financial safeguards against the unexpected. The ability to manage properly what capital one already has should be a prerequisite to borrowing. Perhaps such questions should properly be treated in a book on farm management rather than in the volume under review, but at least some readers will feel that the inclusion of an additional chapter on this phase of agricultural finance would have made the treatment of the subject more complete.

The author wisely avoided being drawn into an analysis of the rapidly changing legislative battle to overhaul the organic structure of the Federal Land Banks and the National Farm Loan Associations. His discussion of the Federal farm credit agencies includes a summary analysis of their major operating problems, but leaves largely untouched the semi-political aspects of proposals contained in the recent Wheeler-Jones bill and the still more recent Fulmer bill.

Agricultural Finance should find widespread use as a college textbook in courses in agricultural finance and as a reference book in several courses in agricultural economics. It is a valuable contribution to the literature in a field which is yearly calling for increased numbers of competent, technically-trained young men.

E. L. BUTZ

Purdue University

Statistical Methods Applied to Agricultural Economics. Frank A. Pearson and Kenneth R. Bennett. New York: John Wiley & Sons, 1942. Pp. 443. \$4.00.

This is a book that the practical agricultural economist should welcome. The mathematical analysis is approached by way of practical problems that arouse the reader's interest. The absorption of the theory follows naturally from a study of the specific examples to which it is applied. In broad outline, the book follows the traditional pattern of its kind with respect to content and the

order in which the subject matter of statistics is presented. The discussion of regression and correlation is unusually complete and well done. The practical man will find much in those chapters that is not ordinarily covered in books of this kind, particularly the sections dealing with the important subject of joint correlation. The method of tabular analysis, which is described in detail, provides a good introduction to the theory of correlation in language that any research worker should be able to follow. It also provides a rapid method of approximation to results that could only be obtained with much labor by other methods.

If deficiencies are to be pointed out, the brevity of the treatment of sampling problems is perhaps the most apparent. The emphasis of the book is on description of data already collected, and the theory of sampling receives little or no attention. This reviewer would like to see that subject given the prominence it deserves in works of this kind. He cannot concur in statements like, "Random sample is a fascinating expression with which statistical theorists love to play. It has relatively little practical significance." Furthermore, random sampling is only one of a large number of methods of sampling that could be discussed. Some of the surveys, which agricultural economists are constantly conducting, could be designed more scientifically if a knowledge of the principles of sampling formed a part of every economist's education. Being somewhat a statistical theorist himself, this reviewer also takes exception to statements of this kind, "If it is not known whether bias is present, that bias itself becomes a chance fluctuation, and there is nothing to do about it except to conclude that the sample is representative." The authors are correct in saying that nothing can be done about an unknown bias, but this hardly transforms such a bias into a chance fluctuation. Mathematical statisticians will also object to defining chi square as "a test of significance for frequencies." The chi square test is much more general than the authors' definition indicates. There is no particular reason why an otherwise excellent manual for practical men should not also be sufficiently accurate to satisfy the theorist when this can be done by correcting a few statements that are obviously misleading.

WALTER A. HENDRICKS

*Bureau of Agricultural Economics
U. S. Department of Agriculture*

The Price of Milk, R. W. Bartlett, Danville, Illinois, Interstate Printers and Publishers, 1941. Pp. 171, \$1.75.

This book, in the words of the author, "has been written for farmers, consumers, businessmen, lawyers, legislators, students, and others who do not presume to be technical experts in milk marketing." It is brief, non-technical, and readable, and it contains in popular form many of the ideas that the author has presented over a period of years in more technical publications.

As might be inferred from its title, most of the book is concerned with milk prices. It discusses the manner in which various forces have affected milk prices, and the effect of those prices, in turn, on milk consumption. Price systems of different kinds receive much attention and Dr. Bartlett presents the outlines of what he believes is a sound pricing system for milk. The effects of a lowering of distribution costs on milk consumption is given especial emphasis. Finally, recommendations are made with regard to the adoption of quality regulations and the enforcement of these and of anti-trust laws.

"Basic requirements to a workable system for pricing milk are that it be geared to reflect quickly fluctuations in supply and demand through changes in price, and that for any given period these prices be the same for all dealers in the market." With this introduction, the author proceeds to dispose of "price systems that have failed." These include (1) the determination of price on the basis of cost of production, (2) collective bargaining by producers with distributing organizations, and (3) rigid governmental fixing of milk prices to producers.

Dr. Bartlett considers "proposed government remedies." Dismissing the proposal that milk distribution be made a public utility or be set up under government ownership, the experience with governmental control of producer and resale prices is reviewed. Here, the author uses the experience of several control agencies to indicate the dangers and weaknesses of control of consumer prices. Then he discusses the fixing of producer prices alone and decides that, with certain modifications, this is the basis of a price system that works.

The system that Dr. Bartlett proposes is essentially that of fixing producer prices by a federal order while at the same time "tying the price of market milk to the price of butter. In some

places this is accomplished through use of the price of condensery milk, which is based largely on the prices of butter and cheese, the condensery price being used for the reason that it not only reflects changes in the general price level, cyclical price movements, and seasonal variations in price, but includes the value of skim milk and transportation. At other places market milk prices are based directly on butter prices. To provide for the extra cost of producing market milk, the prices are of course higher than those for condensery milk or for milk used for manufacturing butter. In addition, premiums above the butter or condensery price are established to reflect local and unusual conditions. In this way sanitary conditions, even production, and such abnormal conditions as a short local supply occasioned by drouth can be taken into account."

When discussing the possibilities of increasing the consumption of milk by lowering costs, Dr. Bartlett states that "... studies show conclusively, in the first place, that people consume more milk when prices are low than when prices are high. They also show, secondly, that lower consumer prices can be brought about by lower costs of production and distribution; and, finally, that the key to bringing about lower costs of distribution lies in the efficient distribution of milk through stores and in discounts for quantity purchases, these to apply to both store sales and wagon deliveries."

Finally, it is stated that the costs of distributing milk are not appreciably lowered "until the heavy hand of monopoly is lifted." The best means of accomplishing this end, according to the author, is the United States Department of Justice.

In calling attention to the defects and limitations of many of the present pricing systems and of the harmful effects on milk consumption which some of these pricing systems may have, Dr. Bartlett has done a worthwhile service. But from the standpoint of the "technical expert" the absence of supporting evidence for many of the statements is disturbing. This is particularly true of the sections dealing with the effects of milk prices in general, and store prices in particular, on consumption.

The responses of consumers to milk price changes are complex and take place over time, and a great deal more study of them is needed before their extent and their timing can be accurately determined.

Other statements are also subject to argument. For example, to this reviewer it seems unrealistic to hope that by enforcement of anti-trust laws all elements of monopoly in the milk business can be eliminated.

In conclusion, it should be emphasized that this book is directed to the layman and not to the expert. This probably explains in large part why statements made in it often appear to be unsupported by conclusive evidence. Relatively little statistical material is presented, and that little is mostly in non-technical form.

ALAN MACLEOD

New England Research Council

NEWS ITEMS

The Editorial Offices of the *Journal of Land and Public Utility Economics* were recently moved from Northwestern University to the University of Wisconsin. George S. Wehrwein is on the Board of Editors and Asher Hobson is on the Business Management Board.

The regional office of the Bureau of Agricultural Economics at Amarillo, Texas, is being moved to Albuquerque, New Mexico, effective April 1. Along with this move, Kenneth Miller of Farm Management is being transferred to the Berkeley office, Charles Butler of Farm Management is going to the Atlanta office, and Edward Peterson has transferred from the Agricultural Planning Field Service to do farm-management work in the Albuquerque office.

WATER UTILIZATION PLANNING SERVICE. The Bureau of Agricultural Economics recently established a Water Utilization Planning Service, headed by Homer M. Wells, to serve more efficiently the needs of the Department of Agriculture in the field of over-all water use planning in the West. This move gives greater recognition to the importance of water to agriculture in the arid and semi-arid regions of the country, and evidences a growing desire to increase assistance in improving water use. To expedite its activities, headquarters of the Service will be centrally located in Denver, Colorado, after April 1. By increasing efficiency of operations, this adjustment will permit the Service to make the maximum contribution to water utilization phases of the war effort.

REGIONAL RESEARCH OF LAND TENURE IN SOUTHWEST. A regional attack upon the land tenure problem has been made possible by a General Education Board grant of \$150,000 for research in this field in the five southwestern states of Arkansas, Louisiana, Mississippi, Oklahoma, and Texas. Agencies cooperating on the project are the agricultural experiment stations of the five states; the Bureau of Agricultural Economics, U. S. Department of Agriculture; the General Education Board; and the Farm Foundation. The University of Arkansas has been made fiscal agent for the General Education Board under the grant. The project will be administered by a director, Harold Hoffsommer, who will be responsible to a research committee composed of C. O. Brannen, University of Arkansas, chairman; B. M. Gile, Louisiana State University; F. J. Welch, Mississippi State College; Peter Nelson and O. D. Duncan, Oklahoma A. and M. College; and L. P. Gabbard, A. and M. College of Texas. It is expected that three years will be required to complete the study. Field work will be started in the near future.

POST-WAR RECONSTRUCTION IN CANADA. In December 1939, the Canadian Government gave its first attention to the problems of post-war reconstruction with the constitution of a Cabinet Committee. At the same time a General Advisory Committee on Demobilization and Rehabilitation was appointed representative of various government Departments. In

February 1941, the functions of the Cabinet Committee were enlarged and an Advisory Committee on Reconstruction was named under the Chairmanship of F. Cyril James, Principal of McGill University. Leonard C. Marsh of McGill was made Director of Research. Recently subcommittees to deal with various matters have been appointed. These include one on Conservation and Development of Natural Resources under the Chairmanship of R. C. Wallace, Principal of Queen's University, and another on Agricultural Policy headed by D. G. MacKenzie, Chairman of the Board of Grain Commissioners. J. F. Booth, Associate Director of Marketing in Charge of Economics, Dominion Department of Agriculture, represents the Department of Agriculture and C. F. Wilson, Chief of the Agricultural Division, Dominion Bureau of Statistics, the Department of Trade and Commerce, on the Agricultural Sub-Committee. E. S. Archibald, Director of Experimental Farm Service, with J. F. Booth as alternate, are members of the General Advisory Committee on Demobilization and Rehabilitation.

CONSERVATION OF SCHOLARLY JOURNALS. The American Library Association created this last year the Committee on Aid to Libraries in War Areas, headed by John R. Russell, the Librarian of the University of Rochester. The Committee is faced with numerous serious problems and hopes that American scholars and scientists will be of considerable aid in the solution of one of these problems.

One of the most difficult tasks in library reconstruction after the first World War was that of completing foreign institutional sets of American scholarly, scientific, and technical periodicals. The attempt to avoid a duplication of that situation is now the concern of the Committee.

Many sets of journals will be broken by the financial inability of the institutions to renew subscriptions. As far as possible they will be completed from a stock of periodicals being purchased by the Committee. Many more will have been broken through mail difficulties and loss of shipments, while still other sets will have disappeared in the destruction of libraries. The size of the eventual demand is impossible to estimate, but requests received by the Committee already give evidence that it will be enormous.

With an imminent paper shortage attempts are being made to collect old periodicals for pulp. Fearing this possible reduction in the already limited supply of scholarly and scientific journals, the Committee hopes to enlist the cooperation of subscribers to this JOURNAL in preventing the sacrifice of this type of material to the pulp demand. It is scarcely necessary to mention the appreciation of foreign institutions and scholars for this activity.

Questions concerning the project or concerning the value of particular periodicals to the project should be directed to Wayne M. Hartwell, Executive Assistant to the Committee on Aid to Libraries in War Areas, Rush Rhees Library, University of Rochester, Rochester, New York.

NATIONAL AGRICULTURAL DEFENSE BOARD. On December 13, 1941, Secretary of Agriculture Wickard announced a reorganization of the Department of Agriculture's administrative machinery and the formation of

an Agricultural Defense Board composed of eleven department officials. It is intended that through this board and the general reorganization of the department, farmers will be helped to discharge the primary responsibility of American agriculture during the emergency, the production of the food and fiber needed by this country and its allies. To quote the Secretary, "To this task, all others must be subordinated."

ORGANIZATION OF AGRICULTURAL MARKETING ADMINISTRATION. On March 9, 1942, the Administrator of the Agricultural Marketing Administration, Roy F. Hendrickson, announced the broad outlines of the organization of the Agricultural Marketing Administration which represents a consolidation of the Surplus Marketing Administration, the Agricultural Marketing Service, and the Commodities Exchange Administration, together with the Federal Surplus Commodities Corporation into one coordinated unit. To assist the administrator in the planning, direction and execution of programs there have been established the positions of two associate administrators and two assistant administrators whose duties are separated and distinguished in part at least on a functional basis. Associate Administrator designated in the Administrator's Memorandum as I is to supervise all procurement programs of the Administration, including Lend-Lease, Red Cross, school lunch purchases, etc. Associate Administrator II is to administer and enforce the regulatory statutes assigned to the Agricultural Marketing Administration, the market news services, the establishment of standards, the inspection services of the Administration, etc. Assistant Administrator III is to supervise all administrative and management functions of the Agricultural Marketing Administration, to analyze the organization and procedures of the Administration and to serve as advisor to the Administrator, particularly in connection with Lease-Lend activities, other war time food programs, and all marketing agreements. Assistant Administrator IV is charged with the development of an integrated program of agricultural marketing with broad responsibility for the review and appraisal of the activities of the Administration, as to whether they are making significant and progressive contributions to the efficient and economic marketing of farm products, is responsible for all marketing research within Agricultural Marketing Administration, and coordinates such research with other research programs of the Department of Agriculture.

The general management functions and auxiliary services of the Agricultural Marketing Administration will be handled by the following divisions whose work will represent a coordination and consolidation of activities formerly conducted by separate units in the Agricultural Marketing Service, Surplus Marketing Administration, and Commodity Exchange Administration: Personnel, Administrative Services, Marketing Reports, Audit, Budget and Accounting, and Investigations. Two other divisions of the Agricultural Marketing Administration, the Consumers Council Division and the Program Appraisal Division, will be established and their duties outlined at a later date.

The line activities of the Agricultural Marketing Administration will be

organized into units to be known as branches, their activities separated partly on a functional and partly on a commodity basis. These branches are as follows: Purchase, Distribution, Dairy and Poultry, Cotton, Tobacco, Grain, Feed and Seed, Livestock, Fruit and Vegetable, Commodity Exchange, and Transportation and Warehousing.

Personnel assignments pursuant to this outline of organization and functions for AMA are as follows:

- Associate Administrator (I)—E. W. Gaumnitz
- Associate Administrator (II)—C. W. Kitchen
- Assistant Administrator (III)—Ralph W. Olmstead
- Assistant Administrator (IV)—F. V. Waugh
- Assistants to the Administrator—Budd Holt, S. R. Newell, J. B. Wyckoff, L. O. Wolcott
- Chief of Personnel Division—Leland Barrows
- “ “ Administrative Services Division—Fred J. Hughes
- “ “ Marketing Reports Division (acting)—J. B. Hasselman
- “ “ Audit Division—D. J. Harold
- “ “ Budget and Accounting Division—W. B. Robertson
- “ “ Investigation Division—Guy Hattel
- “ “ Purchase Branch—H. C. Albin
- “ “ Distribution Branch—J. D. LeCron
- “ “ Dairy, Poultry Branch (acting)—E. W. Gaumnitz
- “ “ Cotton Branch—Carl H. Robinson
- “ “ Tobacco Branch—C. E. Gage
- “ “ Grain, Feed, and Seed Branch—E. J. Murphy
- “ “ Livestock Branch—Harry E. Reed
- “ “ Fruit and Vegetable Branch (acting)—C. W. Kitchen
- “ “ Commodity Exchange Branch—J. M. Mehl
- “ “ Transportation and Warehousing Branch—William C. Crow

L. G. Allbaugh returned in April from a year's leave of absence with the Farm Security Administration to become associate director of the agricultural extension service at Iowa State College.

Louis B. Bassett, Associate Professor of Farm Management, University of Minnesota, will retire on July 1, 1942.

Merrill K. Bennett, Economist and Professor of Economic Geography in the Food Research Institute, Stanford University, was awarded a fellowship by the Guggenheim Foundation for the year 1941-42, to study the diet of people on the Hawaiian Islands with special reference to competition between wheat and rice. Since the attack on Pearl Harbor he has been engaged in volunteer work as Chief of the Statistical Division, under the Director of Food Control for the Territory.

J. D. Black and J. S. Davis are the economist members of the Food and Nutrition Board of the National Research Council, which was set up in November 1939 with the name of Committee on Food and Nutrition.

W. F. Chown, Senior Assistant Economist, Economics Division, Dominion Department of Agriculture, Ottawa, has been loaned to the War-time Prices and Trade Board for the duration.

Gordon Chute has joined the staff of the Tennessee Valley Authority to conduct farm woodland analysis on unit test demonstration farms of the T.V.A. in Tennessee.

Marion Clawson, who has been Coordinator of Research on Agriculture for the Columbia Basin Project for the past two years, has been appointed research consultant in the Littauer School of Public Administration at Harvard University for the second half of this year.

Charles E. Dominy, formerly extension specialist in marketing at Kansas State College, has resigned to accept a position with the Surplus Marketing Administration.

Mr. William E. Duerr, who has been studying in the field of Forestry Economics at Harvard University, has been appointed Forestry Economist for the Southern Appalachian forest region with headquarters at Asheville, North Carolina.

Charles Elkinton left Iowa State College in February to take charge of the meats section in the foods division of Office of Price Administration at Washington, D. C.

R. O. Gustafson has joined the staff of the University of Kentucky as Assistant Forester to work on a three-year study of the potential contribution of forestry in the economy of Eastern Kentucky. This project is under the leadership of the Department of Farm Economics.

Charles W. Hauck returned from Washington, D. C., on March 23 to the Department of Rural Economics and Rural Sociology at the Ohio State University. The previous six months he spent on leave of absence, as head of the Fruit and Vegetable Unit, Food and Food Products Section, Office of Price Maintenance, Washington, D. C.

Harold Hedges, who is in charge of the Grain Section of the Cooperative Research and Service Division of Farm Credit Administration, has been on leave for several months, working with the National Committee for Farm Production Supplies.

William E. Herman has accepted a position with the Agricultural Marketing Service, United States Department of Agriculture.

E. J. Hervey, economist in farm taxation in the Division of Farm and Ranch Economics, Texas Agricultural Experiment Station, since September 1941, has been called into the army.

John A. Hopkins left Iowa State College in March to participate, with two engineer colleagues, in an industrial survey of Argentina. The project is financed by the Argentina Trade Promotion Corporation, a subsidiary of the Banco Central. Dr. Hopkins expects to return to Ames in the fall.

W. C. Hopper, Principal Economist, Economics Division, Department of Agriculture, Ottawa, is on loan to the Agricultural Supplies Board.

Kenneth Hunter, who has been working on the problems of farmers' mutual insurance companies in the Cooperative Research and Service Division of the Farm Credit Administration, is now with the Bureau of Labor Statistics in the Labor Department.

V. Webster Johnson, Senior Agricultural Economist, Division of Land Economics, Bureau of Agricultural Economics, has been named editor of

the Land Resources Section of the *Journal of Land and Public Utility Economics*.

Maurice M. Kelso, formerly head of the Division of Land Economics, Bureau of Agricultural Economics, has taken up his new duties in Albuquerque, New Mexico, as Regional BAE Representative.

J. E. Lattimer and W. M. Drummond, Heads of the Departments of Agricultural Economics at Macdonald College and Ontario Agricultural College, respectively, are members of a Special Committee working on economic problems of the dairy industry for the Canadian Wartime Prices and Trade Board.

Isaac E. Lemon has accepted a position as Junior Economist with the Agricultural Marketing Service, United States Department of Agriculture. He will be located at the district office of the Agricultural Marketing Service located in Baton Rouge.

I. S. McArthur, Assistant Agricultural Economist, Dominion Department of Agriculture, was recently appointed Statistician in the Agricultural Division, Dominion Bureau of Statistics, Ottawa. Mr. McArthur had previously been on loan to the Bureau from the Economics Division, Department of Agriculture.

Frank Merrick has accepted a position in the Research Department of the Farm Credit Administration and is located in District 5 with headquarters in New Orleans.

J. P. Nadeau of the Quebec Milk Commission has been appointed Director (Dairy Products) for the Canadian Wartime Prices and Trade Board.

Patrick E. O'Donnell, formerly with the Dairy Section in the Cooperative Research and Service Division of the Farm Credit Administration, is now working with the Food Division of the Office of Price Administration.

Millard Peck has resigned from the position of Supervisor of Research for the Division of Land Economics, Bureau of Agricultural Economics, in the Southwest to take a position as an economist with the Economic Defense Board.

G. Leroy Peterson, who was instructor in Agricultural Economics at the University of Minnesota, is now on the staff of the University of Connecticut.

W. D. Porter, in charge of land classification work at the Edmonton, Alberta, office of the Economics Division, Canadian Department of Agriculture, has resigned to accept the position of Secretary of the Western Canadian Hail Underwriters Association with headquarters at Regina.

Douglas F. Schepmoes, Assistant Agricultural Economist, Division of Land Economics, Bureau of Agricultural Economics, until recently working on tenure studies at the Kansas Agricultural College, Manhattan, Kansas, has been assigned to work on the land value survey in the Appalachian Region.

Geoffrey Shepherd returned to Iowa State College in January after six months in the Division of Marketing and Transportation Research of the Bureau of Agricultural Economics, doing research work on controlling corn

and hog prices, and three months as assistant director of the Economics Division of the Commodity Credit Corporation.

Karl Shoemaker, formerly engaged in land use planning work at Kansas State College, has been transferred to fill the vacancy in marketing extension caused by the resignation of Charles E. Dominy.

Hans Staehle is taking over the teaching in Commodity Price Analysis at Harvard University, carried in recent years by Wilfred Malenbaum, who is now analyzing current information on the European food situation for the Coordinator of Information.

H. L. Stewart, who recently returned to the Division of Farm Management and Costs from a year at Harvard University, is now heading up the farm-management work in western agriculture.

Victor B. Sullam, a graduate of the University of Florence, Italy, has been appointed assistant in the department of Agricultural Economics N. C. State College.

Alexander Swantz has recently joined the staff of the Cooperative Research and Service Division of the Farm Credit Administration.

B. H. Thibodeaux, who is in charge of the work in the South for the Division of Farm Management and Costs, has been detailed by the Department to assist the Committee on International Affairs in a cooperative study of agriculture in Bolivia. Mr. Thibodeaux left last December and will return sometime this summer.

W. S. Thomas, who has been employed in the flood control work of the Bureau of Agricultural Economics, has recently joined the staff of the Cooperative Research and Service Division.

H. R. Tolley, Chief of the Bureau of Agricultural Economics has been detailed to the Office of Price Administration for a period of two months in order to assist with an administrative reorganization of the Food and Fiber Division of that agency.

Harry C. Trelogan, Senior Agricultural Economist, Economic and Credit Research Division, Farm Credit Administration, has recently transferred to the Office of Agricultural Defense Relations in the United States Department of Agriculture as Chief of the Marketing Section, Transportation and Marketing Division.

LeGrand B. Ward has accepted a position with the Amalgamated Sugar Company with headquarters at Ogden, Utah.

Lawrence Witt left for Brazil early in April on a joint project of the Institute of Current World Affairs and Iowa State College, to study the effects of changing agricultural techniques on international relations. He will remain for six months or a year.

DANIEL H. OTIS

Daniel H. Otis, 65, the third president of the American Farm Economics Association, former professor of agricultural economics and assistant dean of agriculture at Wisconsin, died suddenly at Minneapolis in December, 1941. Mr. Otis was president of the American Farm Economics Association in 1914, following the presidency of the late George F. Warren. From 1905 to 1918 Mr. Otis was associated with the Wisconsin College of Agriculture in the various capacities of assistant to the dean and later assistant dean; assistant professor of animal nutrition; associate professor of animal husbandry; professor of farm management; and professor of agricultural economics. The last two positions were held from 1909 to 1918 while he was also assistant dean. During World War I, he was granted a leave of absence and served his country abroad. In 1919 he resigned his positions at the University of Wisconsin and later became head of the Agricultural Commission of the American Bankers Association, which position he was still occupying at the time of his death.

M. A. S.
